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<tr>
<td>Damla Turgut</td>
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## CONTACT INFORMATION

### TENURED AND TENURE-TRACK FACULTY

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<thead>
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<th>Faculty Member</th>
<th>Location</th>
<th>Phone</th>
<th>E-mail</th>
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</thead>
<tbody>
<tr>
<td>Bagci, Ulas</td>
<td>HEC 221</td>
<td>(407) 823-1047</td>
<td><a href="mailto:bagci@ucf.edu">bagci@ucf.edu</a></td>
</tr>
<tr>
<td>Bölöni, Ladislau</td>
<td>HEC 319</td>
<td>(407) 823-2320</td>
<td><a href="mailto:lboloni@cs.ucf.edu">lboloni@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Chatterjee, Mainak</td>
<td>HEC 305</td>
<td>(407) 823-5793</td>
<td><a href="mailto:mainak@cs.ucf.edu">mainak@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Chen, Guoxing</td>
<td></td>
<td></td>
<td><a href="mailto:Guoxing.Chen@ucf.edu">Guoxing.Chen@ucf.edu</a></td>
</tr>
<tr>
<td>Cruz-Neira, Carolina</td>
<td>HEC 214</td>
<td>(407) 823-1394</td>
<td><a href="mailto:Carolina.Cruz-Neira@ucf.edu">Carolina.Cruz-Neira@ucf.edu</a></td>
</tr>
<tr>
<td>Da Vitoria Lobo, Niels</td>
<td>HEC 252</td>
<td>(407) 823-2873</td>
<td><a href="mailto:niels@cs.ucf.edu">niels@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Dechev, Damian</td>
<td>HEC 211</td>
<td>(407) 823-2549</td>
<td><a href="mailto:dechev@cs.ucf.edu">dechev@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Foroosh, Hassan</td>
<td>HEC 212</td>
<td>(407) 823-5299</td>
<td><a href="mailto:Hassan.Foroosh@ucf.edu">Hassan.Foroosh@ucf.edu</a></td>
</tr>
<tr>
<td>Fu, Yanjie</td>
<td>HPA 238</td>
<td>(407) 823-4993</td>
<td><a href="mailto:Yanjie.Fu@ucf.edu">Yanjie.Fu@ucf.edu</a></td>
</tr>
<tr>
<td>Gazzillo, Paul</td>
<td>HEC 239</td>
<td>(407) 823-5239</td>
<td><a href="mailto:Paul.Gazzillo@ucf.edu">Paul.Gazzillo@ucf.edu</a></td>
</tr>
<tr>
<td>Heinrich, Mark</td>
<td>HEC 345D</td>
<td>(407) 882-0138</td>
<td><a href="mailto:heinrich@cs.ucf.edu">heinrich@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Hu, Haiyan (Nancy)</td>
<td>HEC 233</td>
<td>(407) 882-0134</td>
<td><a href="mailto:haihu@cs.ucf.edu">haihu@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Hua, Kien A.</td>
<td>HEC 229</td>
<td>(407) 823-5342</td>
<td><a href="mailto:kienhua@cs.ucf.edu">kienhua@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Hughes, Charles E.</td>
<td>HEC 247C</td>
<td>(407) 823-2762</td>
<td><a href="mailto:ceh@cs.ucf.edu">ceh@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Jha, Sumit</td>
<td>HEC 255</td>
<td>(407) 882-2215</td>
<td><a href="mailto:jha@cs.ucf.edu">jha@cs.ucf.edu</a></td>
</tr>
<tr>
<td>LaViola, Joseph</td>
<td>HEC 321</td>
<td>(407) 882-2285</td>
<td><a href="mailto:jjl@cs.ucf.edu">jjl@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Leavens, Gary T.</td>
<td>HEC 437D</td>
<td>(407) 823-4758</td>
<td><a href="mailto:Leavens@ucf.edu">Leavens@ucf.edu</a></td>
</tr>
<tr>
<td>Liu, Fei</td>
<td>HEC 217</td>
<td>(407) 823-3183</td>
<td><a href="mailto:Fei.Liu@ucf.edu">Fei.Liu@ucf.edu</a></td>
</tr>
<tr>
<td>Mahalonobis, Abhijit</td>
<td>HEC 244</td>
<td>(407) 823-4999</td>
<td><a href="mailto:Abhijit.Mahalonobis@crcv.ucf.edu">Abhijit.Mahalonobis@crcv.ucf.edu</a></td>
</tr>
<tr>
<td>Marinescu, Dan C.</td>
<td>HEC 304</td>
<td>(407) 823-4860</td>
<td><a href="mailto:dcm@cs.ucf.edu">dcm@cs.ucf.edu</a></td>
</tr>
<tr>
<td>McMahan, Ryan</td>
<td>HEC 433</td>
<td>(407) 823-4994</td>
<td><a href="mailto:rpm@ucf.edu">rpm@ucf.edu</a></td>
</tr>
<tr>
<td>Mell, Johnathan</td>
<td>HEC-</td>
<td></td>
<td><a href="mailto:Johnathan.Mell@ucf.edu">Johnathan.Mell@ucf.edu</a></td>
</tr>
<tr>
<td>Mohaisen, David</td>
<td>HPAII240</td>
<td>(407) 823-1294</td>
<td><a href="mailto:mohaisen@ucf.edu">mohaisen@ucf.edu</a></td>
</tr>
<tr>
<td>Pattanaik, Sumanta</td>
<td>HEC 218</td>
<td>(407) 823-2638</td>
<td><a href="mailto:sumant@cs.ucf.edu">sumant@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Rawat, Yogesh Singh</td>
<td>HEC 245E</td>
<td>(407) 823-6495</td>
<td><a href="mailto:yogesh@crcv.ucf.edu">yogesh@crcv.ucf.edu</a></td>
</tr>
<tr>
<td>Reiners, Dirk</td>
<td>HEC 220</td>
<td>(407) 823-1397</td>
<td><a href="mailto:Dirk.Reiners@ucf.edu">Dirk.Reiners@ucf.edu</a></td>
</tr>
<tr>
<td>Shah, Mubarak</td>
<td>HEC 245D</td>
<td>(407) 823-5077</td>
<td><a href="mailto:shah@crcv.ucf.edu">shah@crcv.ucf.edu</a></td>
</tr>
<tr>
<td>Solihiin, Yan</td>
<td>HPAII239</td>
<td>(407) 823-4191</td>
<td><a href="mailto:Yan.Solihiin@ucf.edu">Yan.Solihiin@ucf.edu</a></td>
</tr>
<tr>
<td>Sukthankar, Gita</td>
<td>HEC 232</td>
<td>(407) 823-4305</td>
<td><a href="mailto:gitars@cs.ucf.edu">gitars@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Thankachan, Sharma</td>
<td>HEC 207</td>
<td>(407) 823-5316</td>
<td><a href="mailto:sharma.thankachan@ucf.edu">sharma.thankachan@ucf.edu</a></td>
</tr>
<tr>
<td>Turgut, Damla</td>
<td>HEC 316</td>
<td>(407) 823-6171</td>
<td><a href="mailto:turgut@cs.ucf.edu">turgut@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Wang, Liqiang</td>
<td>HEC 437E</td>
<td>(407) 823-3187</td>
<td><a href="mailto:lwang@cs.ucf.edu">lwang@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Weyuker, Elaine</td>
<td>N/A</td>
<td>N/A</td>
<td><a href="mailto:Elaine.Weyuker@ucf.edu">Elaine.Weyuker@ucf.edu</a></td>
</tr>
<tr>
<td>Wocjan, Pawel</td>
<td>HEC 341</td>
<td>(407) 823-2844</td>
<td><a href="mailto:wocjan@cs.ucf.edu">wocjan@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Wu, Annie</td>
<td>HEC 314</td>
<td>(407) 823-5922</td>
<td><a href="mailto:aswu@cs.ucf.edu">aswu@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Yooseph, Shibu</td>
<td>BIO133A</td>
<td>(407) 823-5307</td>
<td><a href="mailto:shibu.yooseph@ucf.edu">shibu.yooseph@ucf.edu</a></td>
</tr>
<tr>
<td>Zhang, Shaojie</td>
<td>HEC 311</td>
<td>(407) 823-6095</td>
<td><a href="mailto:shzhang@cs.ucf.edu">shzhang@cs.ucf.edu</a></td>
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<tr>
<td>Zhang, Wei</td>
<td>BIO-137B</td>
<td>(407) 823-2763</td>
<td><a href="mailto:Wzhang.cs@ucf.edu">Wzhang.cs@ucf.edu</a></td>
</tr>
<tr>
<td>Zou, Cliff</td>
<td>HEC 243</td>
<td>(407) 823-5015</td>
<td><a href="mailto:czou@cs.ucf.edu">czou@cs.ucf.edu</a></td>
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# CONTACT INFORMATION

## LECTURERS AND INSTRUCTORS AND VISITING LECTURERS AND INSTRUCTORS

<table>
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<tr>
<td>Ahmed, Tanvir</td>
<td>ENG1 453</td>
<td>(407) 823-5043</td>
<td><a href="mailto:Tanvir.Ahmed@ucf.edu">Tanvir.Ahmed@ucf.edu</a></td>
</tr>
<tr>
<td>Aria, Reza (Ray)</td>
<td>HEC-258</td>
<td>(407) 823-5235</td>
<td><a href="mailto:Reza.Aria@ucf.edu">Reza.Aria@ucf.edu</a></td>
</tr>
<tr>
<td>Angell, Sarah</td>
<td>HEC 230</td>
<td>(407) 823-1061</td>
<td><a href="mailto:sangell@cs.ucf.edu">sangell@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Gerber, Matthew</td>
<td>HEC-257</td>
<td>(407) 823-4996</td>
<td><a href="mailto:Matthew.Gerber@ucf.edu">Matthew.Gerber@ucf.edu</a></td>
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<tr>
<td>Guha, Arup</td>
<td>HEC 240</td>
<td>(407) 823-1062</td>
<td><a href="mailto:dmarino@cs.ucf.edu">dmarino@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Leinecker, Richard</td>
<td>HEC 328</td>
<td>(407) 823-0169</td>
<td><a href="mailto:Richard.Leinecker@ucf.edu">Richard.Leinecker@ucf.edu</a></td>
</tr>
<tr>
<td>Llewellyn, Mark</td>
<td>HEC 236</td>
<td>(407) 823-2790</td>
<td><a href="mailto:markl@cs.ucf.edu">markl@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Meade, Travis</td>
<td>HEC239A</td>
<td>(407) 823-5237</td>
<td><a href="mailto:Trevis.Meade@ucf.edu">Trevis.Meade@ucf.edu</a></td>
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<td>Montagne, Euripides</td>
<td>HEC 217</td>
<td>(407) 823-2684</td>
<td><a href="mailto:eurip@cs.ucf.edu">eurip@cs.ucf.edu</a></td>
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<tr>
<td>Nedorost, Thomas</td>
<td>HEC 317</td>
<td>(407)823-0408</td>
<td><a href="mailto:Thomas.Nedorost@ucf.edu">Thomas.Nedorost@ucf.edu</a></td>
</tr>
<tr>
<td>Whiting, Karin</td>
<td>HEC 412</td>
<td>(407)823-4757</td>
<td><a href="mailto:Karin.Whiting@ucf.edu">Karin.Whiting@ucf.edu</a></td>
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## AFFILIATED FACULTY, VISITORS, AND JOINT APPOINTMENTS

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<tr>
<td>Awad, Amro J.</td>
<td>HEC 339A</td>
<td>(407)823-1304</td>
<td><a href="mailto:Amro.Awad@ucf.edu">Amro.Awad@ucf.edu</a></td>
</tr>
<tr>
<td>Batarseh, Issa</td>
<td>HEC 204</td>
<td>(407) 823-0185</td>
<td><a href="mailto:batarseh@ece.ucf.edu">batarseh@ece.ucf.edu</a></td>
</tr>
<tr>
<td>DeMara, Ronald F.</td>
<td>HEC 310</td>
<td>(407) 823-5916</td>
<td><a href="mailto:demara@ece.ucf.edu">demara@ece.ucf.edu</a></td>
</tr>
<tr>
<td>Ewetz, Rickard</td>
<td>HEC 235</td>
<td>(407) 823-4766</td>
<td><a href="mailto:Rickard.Weetz@ucf.edu">Rickard.Weetz@ucf.edu</a></td>
</tr>
<tr>
<td>Fallah, Yaser</td>
<td>HEC 355</td>
<td>(407) 823-4182</td>
<td><a href="mailto:Yaser.Fallah@ucf.edu">Yaser.Fallah@ucf.edu</a></td>
</tr>
<tr>
<td>Fan, Deliang</td>
<td>HEC 343</td>
<td>(407) 823-4476</td>
<td><a href="mailto:dfan@ucf.edu">dfan@ucf.edu</a></td>
</tr>
<tr>
<td>Garibay, Ivan</td>
<td>ENG2 424</td>
<td>(407) 823-2204</td>
<td><a href="mailto:Ivan.Garibay@ucf.edu">Ivan.Garibay@ucf.edu</a></td>
</tr>
<tr>
<td>Li, Xiaoman</td>
<td>HEC 210</td>
<td>(407) 823-4811</td>
<td><a href="mailto:xiaoman@ucf.edu">xiaoman@ucf.edu</a></td>
</tr>
<tr>
<td>Rahnvard, Nazanin</td>
<td>HEC 335</td>
<td>(407) 823-1762</td>
<td><a href="mailto:nazanin@ece.ucf.edu">nazanin@ece.ucf.edu</a></td>
</tr>
<tr>
<td>Wang, Jun</td>
<td>HEC 320</td>
<td>(407) 883-0449</td>
<td><a href="mailto:juwang@ece.ucf.edu">juwang@ece.ucf.edu</a></td>
</tr>
<tr>
<td>Welch, Gregory</td>
<td>P3 110</td>
<td>(407)-796-2823</td>
<td><a href="mailto:welch@ucf.edu">welch@ucf.edu</a></td>
</tr>
<tr>
<td>Wiegand, Paul</td>
<td>P3 209</td>
<td>(407) 882-0313</td>
<td><a href="mailto:wiegand@ist.ucf.edu">wiegand@ist.ucf.edu</a></td>
</tr>
<tr>
<td>Yuan, Jiann S.</td>
<td>HEC 423</td>
<td>(407) 823-5719</td>
<td><a href="mailto:yuanj@ece.ucf.edu">yuanj@ece.ucf.edu</a></td>
</tr>
<tr>
<td>Yuksel, Murat</td>
<td>HEC317A</td>
<td>(407) 823-4181</td>
<td><a href="mailto:Murat.Yuksel@ucf.edu">Murat.Yuksel@ucf.edu</a></td>
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## PROFESSORS EMERITUS AND RETIRED

<table>
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<th>Location</th>
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<tr>
<td>Bassiouni, Mostafa</td>
<td></td>
<td></td>
<td><a href="mailto:bassi@cs.ucf.edu">bassi@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Deo, Narsingh</td>
<td>HEC 361</td>
<td>(407) 823-6336</td>
<td><a href="mailto:deo@cs.ucf.edu">deo@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Dutton, Ronald</td>
<td>HEC 204</td>
<td>(407) 883-2920</td>
<td><a href="mailto:dutton@cs.ucf.edu">dutton@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Gonzalez, Avelino</td>
<td>HEC 329</td>
<td>(407) 823-5027</td>
<td><a href="mailto:gonzalez@cs.ucf.edu">gonzalez@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Guha, Ratan</td>
<td>HEC 244</td>
<td>(407) 823-2956</td>
<td><a href="mailto:guha@cs.ucf.edu">guha@cs.ucf.edu</a></td>
</tr>
<tr>
<td>Orooji, Ali</td>
<td>HEC 228</td>
<td>(407) 823-2956</td>
<td><a href="mailto:orooji@cs.ucf.edu">orooji@cs.ucf.edu</a></td>
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</table>
OVERVIEW OF RESEARCH IN COMPUTER SCIENCE AT UCF

Research in Computer Science spans a wide range of topics. At UCF research in Computer Science emphasizes:

- Innovative uses for computation (including new applications, algorithms, protocols, and tools),
- Studies of issues surrounding computation (including security, theory, human-computer interaction, and insights into the design, programming and verification of programs and systems), and
- Investigations into the nature of computation (including questions such as: what is intelligence?).

Typically, writing a computer program is not considered worthy of a research publication, unless the program is being used to demonstrate some new tool, programming technique, or has some other purpose driven by the kinds of Computer Science questions described above. Thus, while we are eager to partner with others in research, our potential research partners need to be aware that computer science research is not the same as programming.

Our faculty have won many awards (such as best paper awards at conferences) and have been recognized by various professional societies. We have on our faculty a member of the National Academy of Engineering, 5 Fellows of the IEEE, one ACM Fellow (and one retired), 1 IAPR Fellow, 1 SPIE Fellow, and 1 Fellow of the AAAS (and one retired). Our faculty also includes 8 NSF CAREER award winners, 3 AFOSR Young Investigator award winners, and 2 DARPA CS Study Group award winners. See [http://www.cs.ucf.edu/about/facawards.php](http://www.cs.ucf.edu/about/facawards.php) for more details and other faculty awards.

In what follows we give a brief overview of the main research areas in Computer Science at UCF.

**Computer Vision** addresses the problem of how to use computers to process visual information, including pictures and videos. Specific problems include detection and recognition of objects, features, or actions, segmentation of videos, and using image or video data in computational processes. Drs. Bagei, Foroosh, da Vitoria Lobo, Mahalanobis, Rawat, Shah, and Welch work in this area.

**Image and Video Processing** addresses the problems of acquisition, storage, retrieval, and processing of images, videos, and high dimensional signals for extraction and analysis of useful information for human users, robots, and autonomous systems. Specific problems include design and analysis of imaging sensors, high-dimensional signal representation and transformation, compression methods, image/video retrieval, 3D sensing and modeling, medical imaging, space imaging, and live video computing. Drs. Bagei, Foroosh, Gong, and Hua work in this area.

**Virtual Reality (VR)** is a multidisciplinary area of research aimed at interactive computer-mediated immersive simulations of environments or experiences typically involving sight, sound, and touch. Simulations involving a blending of real and virtual objects is often referred to as Augmented Reality (AR). Research in VR/AR encompasses a wide range of fundamental topics, including computer graphics, multi-modal systems (e.g., displays, tracking, haptics, robotics), 3D interaction, illusions of presence/tele-presence, and human factors. One of our current foci is on human-centered experiences involving avatars and virtual humans for training teachers, healthcare practitioners, and military personnel.

**Human Computer Interaction (HCI)** is the scientific study how humanity communicates with all aspects of computing technology. HCI is an interdisciplinary field that spans computer science, computer engineering, psychology, human factors, and cognitive science. In our department, we focus specifically on developing and evaluating interactive systems that help to improve people's lives when using computer-based environments. We focus on improving the user experience in application areas such as education, entertainment, medicine, robotics, and general work productivity. Drs. Cruz-Neira, Hughes, LaViola, McMahan, Mell, Welch, and Wisniewski work in these areas.

**Artificial Intelligence (AI)** seeks to understand the fundamental nature of intelligence and how to make computers exhibit intelligent behavior. **Machine Learning** addresses the problem of how to automatically learn concepts and behaviors from data. With seven faculty in AI and machine learning, UCF CS is highly active in these areas. Major research strengths include complex systems, data mining, diagnostics, evolutionary computation, intelligent simulation, knowledge representation, learning from observation of human performance, multi-agent systems, natural language processing, neural
networks, neuroevolution, robotics, and social informatics. Drs. Boloni, Fu, Gong, Gonzalez, Hu, Liu, Sukthankar, and Wu work in this area.

**Computer Graphics** addresses the problem of how to produce images of objects from their mathematical descriptions using computers. Examples of specific research foci include how to render realistic looking objects, how to animate such objects, and how to use rendering and animation for simulation and interactive training including Virtual Reality and Augmented Reality. Some of our work involves computer vision/image processing, for example interactive view synthesis and Spatial Augmented Reality. Drs. McMahan, Pattanaik, and Welch work in this area.

**Software Engineering** addresses the problem of how to produce quality software on time and within a specific budget. **Systems** work addresses the problem of how to build large computer systems that accomplish some specific purpose. Specific research problems in Software Engineering that we are investigating include: how best to describe what software systems are supposed to do (specification), how to ensure that computational systems behave correctly (verification), model checking of software and hardware systems with a particular emphasis on scalable formal verification of cyber-physical systems and quantitative computational models, how to parallelize systems for maximum efficiency, how to model, analyze, and optimize the performance of software, and how to build large, concurrent and distributed systems. Drs. Dechev, Gazzillo, Hua, Jha, Leavens, Marinescu, Turgut, and Wang work in these areas.

**Database** research addresses the problem of storage and retrieval of data. Information must be stored in a fashion that allows both efficient and convenient retrieval by people and applications. Specific problems addressed in research at UCF include techniques for parallel and distributed processing of very large data sets, database management as a service, moving object databases for mobile computing, querying multimedia databases that may include online cameras as a special class of storage devices, database management in the Internet of Things, and data privacy and security. Drs. Hua, Llewellyn, and Zou work in this area.

**Parallel Computation** deals with the theory and practice of organizing computations to run faster on machines with several processors. Different models of parallelism are studied along with parallelizability of various problems. Practical aspects involve designing parallel algorithms and data structures to solve compute-intensive problems on rapidly evolving platforms with massive parallelism, fast and efficiently. A key challenge for creating and adapting parallel software applications is the high architectural complexity of HPC systems in terms of their degree of concurrency and heterogeneity, sensitivity to communications and data movement, and requirements for locality. Enabling effective large-scale multiprocessor computing will have an impact that crosscuts multiple areas of science. There are still many barriers involved in building efficient HPC software applications and hardware platforms. Research at UCF aims to provide the fundamental tools and techniques for understanding how to design applications and algorithms for the rapidly evolving massively parallel chip architectures. Drs. Dechev, Heinrich, Hua, Jha, Marinescu, Solihan and Wang work in this area.

**Networking and Mobile Computing** is concerned with designing efficient communications protocols and architectures for exchanging data among computers and mobile devices. The scientific results of the field enable a wide range of networked applications and enhance the real-world experience of network and mobile users. Research areas investigated by our faculty include but are not limited to resource management techniques in ad hoc, cellular, and cognitive radio networks, challenging topics in sensor networks such as intruder tracking, underwater sensors and maximizing value of information, intelligent sharing of wired and wireless bandwidth, and real-time transmission of audio and video over wireless networks/Internet. Drs. Chatterjee, Hua, Mohaisen, and Turgut work in this area.

**Computer Security** is concerned with designing mechanisms for protecting computers and networks from attacks, keeping information confidential and safe from tampering, preventing unauthorized access to resources, and providing robust security to various applications including e-commerce transactions. Research areas investigated by our faculty include but are not limited to Intrusion Prevention and Detection, Malware Propagation Modeling and Analysis, Security of Wireless Networks, Sensor Networks and Vehicular Ad hoc Networks, Authentication Protocols, and Cloud Security. **Digital Forensics** addresses the problem of recovering evidence (e.g., to be used in court) from computers, mobile devices, or any
storage media that may hold data in binary form. Drs. Chen, Jha, Gazzillo, Leavens, Mohaisen, Solihin, Wocjan, and Zou work in these areas.

**Bioinformatics** is an interdisciplinary field to study various biological problems using advanced computational and statistical methods. With large-scale high-throughput biological data rapidly accumulated, this fast-growing field has become an indispensable part to biology research, also an important avenue for computer scientists to study biological problems. Bioinformatics research at UCF CS focuses on the following several areas: computational genomics, metagenomics, non-coding RNA and RNA genomics, systems biology to model gene protein interactions and gene regulation, and machine learning and data mining algorithms to integrate massive biological data and networks. Computational systems biology is the new and upcoming inter-disciplinary science that combines approaches from dynamical systems, control theory, formal methods, and process algebra to study the complex interactions within and among biological systems. Building on the existing success of bioinformatics and bio-imaging research, computational **systems biology** constructs mathematical and computational models so as to facilitate a holistic understanding of biological systems; hence, it differs fundamentally from the reductionist view of traditional studies in life sciences. Together with partners from medical schools and national laboratories, we are studying translational computational systems biology with applications in drug design, metabolic networks, clinical decision making, and the design of verified biomedical cyber-physical systems. Drs. Hu, Jha, Thankachan, Yooseph, Shaojie Zhang, and Wei Zhang work in these areas.

**Theory of Computing** addresses the problem of understanding the fundamental nature and limits of computation. Algorithms addresses the problem of how to best solve specific problems using minimal time and space resources. **Quantum Computing** addresses the problem of how to compute using quantum mechanical phenomenon, such as photons. Specific problems in the Theory of Computing include how to classify problems as to their degree of difficulty. Specific problems in Algorithms include finding (optimal) algorithms for computing problems and proving that a given problem requires a certain minimum amount of resources for its solution. Specific problems in Quantum Computing include finding algorithms for solving problems efficiently using quantum information. Drs. Deo, Hughes, Marinescu, Thankachan, Wocjan, Yooseph, and Shaojie Zhang work in these areas.

**Computer architecture** research focuses on designing computer systems optimized for high performance, energy efficiency, and scalability or some combination thereof. This research may focus on many aspects of computer systems including the design of processors, memory systems, GPUs, mobile and embedded devices, big data I/O systems, networks, and large-scale parallel machines. Specific problems include the hardware/software co-design of energy efficient architectures for heterogeneous multicore processors and understanding the interaction of file systems and parallel I/O systems in big data applications and its implications for modern file system design. Drs. Chen, Heinrich, and Solihin work in this area.
Ulas Bagci
Assistant Professor
Ph.D., Computer Science: University of Nottingham, UK, 2010.
Principal Investigator (NIH R01)

Other Affiliations:
Guest Investigator, Clinical Center, NIH, Bethesda, MD.

Contact
bagci@crcv.ucf.edu
407-823-1047

Research
http://www.cs.ucf.edu/~bagci
• Machine Learning / Deep Learning,
• Biomedical Imaging

Ladislau Bölöni
Professor
Ph.D., Computer Science; Purdue University, 2000

Contact
lboloni@cs.ucf.edu
407-823-2320

Research
http://www.cs.ucf.edu/~lboloni

• Robotics and AI
  • Deep learning from demonstration
  • Vision-based end-to-end learning
  • Human-robot teaming
  • Meta learning
• Autonomous agents
  • Modeling of human behavior in social and cultural environments
  • Mutable agents
• Cognitive architectures
  • Narrative reasoning
• Distributed and grid computing
  • Task scheduling and resource allocation
• Wireless networking
  • Sensor networks with mobile sinks and nodes
  • Value of information-based approaches

Other Experience
• Visiting Researcher, Hungarian Academy of Science 1994-95
• Infrastructure Architect, CPlane Inc. 2000-2002
• Visiting Researcher, Imperial College, London, 2011
• Visiting Researcher, University of Rome La Sapienza, 2012
• Member of Technical Advisory Board / Chief Architect, MosaixSoft Inc 2015-2017
• Co-Founder, Ximpatico Robotics

Professional Activities
• Associate Editor, International Journal of Ad Hoc and Ubiquitous Computing
• Panel reviewer (NSF, NASA, NIH, NIST)
• Member IEEE (senior), ACM, AAAI

Honors & Awards
• Kurzweil Best Artificial General Intelligence Idea Prize 2014
• Best Paper Award ICC 2013
• NASA Software Award 2005
• UCF Research Incentive Award (RIA) 2019
Mainak Chatterjee

Associate Professor
Ph.D., Computer Science & Engineering;
University of Texas at Arlington, 2002
Secondary Joint Appointment in Electrical & Computer Engineering

Contact
mainak@cs.ucf.edu
407-823-5793

Research
http://www.cs.ucf.edu/~mainak

- Cybersecurity
  - Blockchain and Cryptocurrencies
  - Trust models; Attack & defense strategies
  - Information fusion & consensus
- Wireless Networks
  - Software defined radio & Dynamic spectrum access
  - Internet of things; Ad hoc and sensor networks; 4G/5G
  - Testbed implementations
- Network Economics
  - Pricing issues in networks
  - Game and Auction theories
- Online Social Networks
  - Online recommender systems & rating predictions
  - Social network interactions
  - Information propagation
- Video Delivery
  - Video transport, Quality of Experience (QoE)
  - IPTV, VoD, Streaming media

Other Experience
- Faculty Fellow, Air Force Research Lab
- Consultant, NEC, ITT, BAH, and AFRL
- Research Intern, Nokia Research, 2001

Professional Activities
- Editor: Pervasive and Mobile Comp; Computer Comm.
- Founding Chair: ACM Workshop Mobile Video (MoVid)
- External PhD Examiner: Canada, Norway, India, Germany
- TPC Co-Chair: GlobeCom WoWMoM, ICCCN, ICDCN
- TPC member: INFOCOM, DySPAN, ICC, PerCom

Honors & Awards
- UCF Teaching Incentive Program Award (TIP), 2010, 2016
- Best paper award, IEEE PIMRC 2011
- US National Research Council Fellowship Award 2011
- Best paper award, IEEE Globecom 2008
- Young Investigator Program (YIP) Award, AFOSR
- Best dissertation award, CSE, UTA, 2002
- Best Summer Intern, Nokia Research, Dallas, 2001

Guoxing Chen

Associate Professor
Ph.D., Computer Science & Engineering;
The Ohio State University, 2019

Contact
Guoxing.Chen@ucf.edu

Research
http://www.cs.ucf.edu/~Guoxing

- System Security
- Side-Channel Security
- Trusted Execution Environment
- Differential Privacy

Other Experience
- Research Scientist, Facebook Inc., 2019-2020

Professional Activities
- TPC member of IEEE CloudCom 2020
- Reviewers IEEE TDSC, IEEE TIFS, IEEE TPDS, ACM TOPS, ACM TOSN, IEEE TSC

Honors and Awards
- Student Travel Grants: ACM CCS 2015, IEEE INFOCOM 2018
- O’Donnell Fellowship, OSU, 2013-2014

Selected Publications
- G. Chen, T.H. Lai, M. Reiter, Y. Zhang, “Differentially Private Access...
Carolina Cruz-Neira

Agere Chair Professor
Ph.D., Electrical Engineering and Computer Science; University of Illinois at Chicago, 1995.

Contact
carolina@ucf.edu
407 - 823-1394

Research
- Virtual Reality Systems
  - Design of software frameworks for hardware-agnostic applications
  - Design of new VR platforms beyond headsets
- Simulation and Training
  - Context-sensitive collaborative environments
  - Multi-platform environments
- Applications for Virtual and Augmented Reality
  - Practical applications for the use of virtual and augmented reality in a wide range of disciplines and domains
- Emerging Visual Data Analytics

Other Experience
01/18 – present CEO, CG Heroes, LLC
02/18 – present Co-Founder and Steering committee member, Americal CyberAlliance
05/16 – present Steering Committee member, NSF Big Data South Hub
07/14 – present Senior Advisor, Natural Sciences and Engineering Research Council of Canada (NSERC)
03/2006-12/2008 CEO Louisiana Immersive Technologies Enterprise

Professional Activities
- Chief Editor, VR and Industry, Frontiers in Virtual Reality Journal
- Editorial Board, Computers and Graphics Journal
- Editorial Board, Multimodal Technologies and Interaction Journal
- Panel reviewer (NSF, NASA, NIH, NIST)
- IEEE Conference on Virtual Reality and 3D User Interfaces, Co-founder, and several roles (General conference Chair, Program Chair, Research Exhibits Chair, Publicity Chair, technical program reviewer)

Honors & Awards
- IEEE Fellow, 2020
- National Academy of Engineering member, 2018
- Named among “the top 25 innovators in virtual reality,” Polygon Media, 2016
- Named one of the three “Virtual Reality Greatest Female Innovators,” University Herald, 2016.
- Winner, Sikorsky Entrepreneurial Challenge 2014 (with Dirk Reiners and Don Pierce)
- Member, National Research Council Panel on Human Factors Science for the Army Research Laboratory 2013-2015
- 2009 Distinguished Career Award, International Digital Media & Arts Society
- IEEE VGTC Virtual Reality Technical Achievement Award 2007
- Inducted by the ACM as a “Computer Graphics Pioneer,” Jan 2003
- Eminent Engineer, Tau Beta Pi, April 2002
- Boeing Welliver Faculty Fellowship, Summer 2001

Niels da Vitoria Lobo

Associate Professor
Ph.D., Computer Science; University of Toronto, 1993

Contact
niels@cs.ucf.edu
407-823-2873

Research
http://server.cs.ucf.edu/~vision/faculty/nielslobo.html
- Machine Learning for Vision
  - Learning representation for visual reasoning
  - Unsupervised discovery of new object classes
  - Visual Captioning and Question Answering
- Computer Science Education
  - Early teenage programming pedagogy
  - Broadening Participation

Professional Activities
- National Science Foundation panelist, Fall 2019

Active Funding
- NSF REU Site co-P.I. (2018-2021)
- NSF S-STEM Senior Personnel (2018-2023)

Recent Publications
Damian Dechev

Associate Professor
Ph.D., Computer Science and Engineering; Texas A&M University, 2009

Contact
dechev@cse.ucf.edu
407-823-2549

Research
http://cse.cs.ucf.edu

- Programming Techniques and Tools
- Multiprocessor Programming
- Concurrent Data Structures
- Verification of Concurrent Algorithms
- Large-scale Performance Analysis

Other Experience
- Senior Member of Technical Staff, Sandia National Laboratories, Livermore, CA 2009-2010;
- Research Assistant, Texas A&M University, College Station, TX 2003-2009;
- Adjunct Faculty, University of Delaware, Newark, DE, 2001-2003;

Professional Activities
- Referee for NSF and DOE ASCR Reviews Panels.
- UCF CS Department Graduate Committee Member.

Honors and Awards

Hassan Foroosh

CAE Link Professor of Computer Science
Ph.D., Computer Science; INRIA-University of Nice, France, 1996

Contact
Hassan.Foroosh@ucf.edu
407-823-5299

Research
Director, Computational Imaging Lab.: http://cil.cs.ucf.edu

- Image/Video Understanding
- Deep Learning: Sparse Architectures, “Big Data” Analytics
- Confluence of vision and natural language processing
- Transfer learning, Deep Adversarial methods
- Facial features/expression, Gesture Recognition
- Emotion/Sentiment analysis in images

- Video Surveillance and Camera Networks
- Video Activity Recognition and Monitoring
- Video Context Analysis and Retrieval
- Multi-Target Tracking on Moving Platforms
- Video Camera Networks: Self-Calibration and Self-Configuration, Multi-target tracking and Reidentification

- Image/Video Processing
- Super-resolution (Video, SAR, EO, IR, Hyper-spectral)
- Compressed Sensing, Cooperative Sensing, Compressed Domain Target Localization, Recognition, and Coding
- Bio-Medical Image Analysis and Processing

- Image-Based Modeling
- 3D Modeling from Video/Image Data

Other Experience
- Senior Research Scientist, UC Berkeley, 2000-2002
- Research Scientist, University of Maryland, 1997-2000

Professional Activities
- Voting Member of the IEEE Multimedia Communications Technical Committee (MMTC)
- Associate Member of IEEE Image, Video, and Multi-dimensional Signal Processing Technical Committee, 2010
- Area chair, Organizer, TPC member, IEEE ICIP, since 2002
- TPC member and Session Chair: CVPR, ICCV, since 2002

Honors & Awards
- IEEE ICIP Best Paper Award, 2018
- CECS Advisory Board Award for Faculty Excellence, 2017
- CECS Excellence in Research Award 2016, 2014, 2006
- UCF Millionaires' Club Award, 2015, 2014, 2013
- UCF Research Initiative Award (RIA), 2019, 2014, 2009
- UCF Teaching Incentive Program (TIP) Award, 2013, 2008
- IAPR Piero Zamperoni Award, 2004
- IAPR Best Scientific Paper Award
- Senior Member, IEEE
Yanjie Fu

Assistant Professor
Ph.D., Rutgers University, 2016

Contact
Yanjie.Fu@ucf.edu

Research

http://www.yanjiefu.com

Integrated human and machine learning with spatial, temporal, and networked behaviors for big data applications.
- Deep representation spatial temporal and networked data
- Reinforcement learning and automated data science
- Spatial temporal knowledge graphs
- Prescriptive and real-time outlier detection
- Applications: power grids, transportation, recommender systems, urban computing, IoT analysis, intelligent education

Other Experiences
- Assistant Professor of Missouri S&T, 2016-2019
- Summer Intern, IBM TJ Watson Research, 2015
- Summer Intern, Huawei Research, 2013-2014
- Summer Intern, Microsoft Research Asia, 2012

Professional Activities
- Member of ACM, IEEE, SIAM
- TPC members of ACM SIGKDD, IEEE ICDM, ACM SIGSpatial, AAAI, IJCAI, IEEE BigData, ACM CIKM, SIAM SDM, PAKDD, DASFAA
- Reviewers of IEEE TKDE, ACM TKDD, ACM TOIS, INFORMS JOC, IEEE TBD, ACM TIST, IEEE TMC, KAIS, Neurocomputing

Honors & Awards
- 2018 ACM SIGKDD Best Student Paper, Runner-Up
- 2018 NSF CRII (mini-CAREER) Award
- 2017 University of Missouri Research Board Award
- 2016 Microsoft Research Azure Research Award
- 2014 IEEE ICDM Best Paper, Runner-up
- 2010 IEEE WCCI Active Learning Challenge Championship (First Place)

Paul Gazzillo

Assistant Professor
Ph.D., Computer Science; New York University, 2016

Contact
Paul.Gazzillo@ucf.edu

Research

https://paulgazzillo.com/

- Programming languages and compilers
  - Program analysis
  - Language design
- Software engineering
  - Analysis of highly-configurable software
  - Build and configuration systems
- Software security
  - Side-channel attack detection and mitigation
  - Blockchain smart contracts

Professional Activities
- Program committee (MODEVAR 2019, SPLC Challenge 2018)
- NSF Panelist (2020, 2019)
- Artifact Evaluation Committee (OOPSLA 2018, POPL 2018)

Honors & Awards
- NSF CAREER award (2020)
- NYU MacCracken Fellowship (2014-2015)
- NYU Matthew Smosna Prize (2012)
- ACM SIGPLAN Research Highlight (2012)

Funding
Mark Heinrich
Associate Professor
Ph.D., Electrical Engineering; Stanford University, 1999

Contact
heinrich@cs.ucf.edu
407-882-0138

Research
http://www.cs.ucf.edu/~heinrich

- Parallel Computer Architecture
- Heterogeneous/GPGPU Architectures
- Energy-efficient architectures
- Cloud-based Mobile and Web Services
- Scalable Cache Coherence Protocols

Other Experience
- CS Senior Design Coordinator, 2013-present
- Director, School of Computer Science, UCF, 2005
- Associate Director, School of EECS, UCF, 2005-07
- Founder, CTO, Planfare Inc., 2004-2011, Acquired by Carbonite, August 2011
- Assistant Professor, ECE, Cornell University, 1998-2002

Professional Activities
- Senior Member, IEEE, Member ACM
- Reviewer NSF, various IEEE and ACM Conferences (ISCA, ASPLOS, HPCA, MICRO, PACT)
- Program Committee and Workshop Chair, HPCA

Honors & Awards
- Over 2,000 citations on Google Scholar
- IBM Faculty Award, 2004
- NSF CAREER Award, 2000-2004
- “The Stanford FLASH Multiprocessor” selected as one of best papers in 25 years of ISCA (836 citations)
- Cornell University College of Engineering’s Michael Tien ’72 Excellence in Teaching Award, 2001
- Cornell University IEEE Teacher of the Year, 1999-2000
- NSF Graduate Fellow, 1991-94
- Graduated 1st in class, Duke University, EE/CS, 1991

Haiyan (Nancy) Hu
Associate Professor
Ph.D., Computer Science; University of Southern California, 2006

Contact
haihu@cs.ucf.edu
407-882-0134

Research
http://www.cs.ucf.edu/~haihu

- Computational study of microRNA and long non-coding RNAs
- Computational methods to study epigenetic and genetic Regulation
- Genomics and Cancer, Alzheimer’s, Parkinson diseases
- Big and Small Data mining, Machine Learning and Statistical Pattern Recognition

Other Experience
- Research Assistant Professor, Indiana University 2006-2008

Professional Activities
- Panelist for National Institutes of Health (NIH) (2016)
- Panelist for The American Association for the Advancement of Science (2012)
- Reviewer for Pattern Recognition, Neural Networks, Genomics, Bioinformatics, Nature Scientific Report, IEEE/ACM Transactions on Computational Biology and Bioinformatics, PLOS ONE, and others
- Local Arrangement chair of ACM BCB conference (2012)

Honors & Awards
- NSF CAREER Award, 2012-2019
- Research Incentive Award, UCF 2014
- Reach for the Stars Award, UCF 2015
- Research Incentive Award, UCF 2019
Kien A. Hua

Pegasus Professor
Ph.D., Electrical Engineering; University of Illinois at Urbana Champaign, 1987

Contact
kienhua@cs.ucf.edu
407-823-5342

Research
Co-Director, Data Systems Lab: http://dsg.cs.ucf.edu/
- Data Management
  - Image and Video Retrieval
  - Realtime Multimedia Computing and Internet of Things
  - Mobile Computing
- Data Analysis
  - Multidimensional Data Analytics
  - Neural Networks for Music Generation
  - Social Media Analytics
  - Medical Imaging Diagnosis
  - Intelligent Transportation Systems
- Data Communications
  - Video Communications
  - Wireless Communications

Other Experience
- Advisory Engineer and Lead Architect of a Parallel Computer Project, IBM Mid-Hudson Laboratories
- NASA domain expert in space port technology

Professional Activities
- Conference Chair, Track Chair, Program Vice Chair, Technical Program Committee Member of numerous IEEE and ACM Conferences
- Over 300 refereed publications

Honors & Awards
- IEEE Fellow
- 15 Top/Best Paper Recognitions at international conferences and one paper of the year at a journal
- Best Presenter Awards at an IEEE conference
- UCF College of Engineering & Computer Science Distinguished Lecturer
- UCF Teaching Incentive Awards (three times)
- UCF Research Incentive Award

Charles E. Hughes

Professor
Ph.D., Computer Science; Penn State University, 1970
Secondary Appointments: Games and Interactive Media; Modeling, Simulation & Training; College of Community Innovation & Education

Contact
ceh@cs.ucf.edu
407-823-2762

Research
Co-Director, Synthetic Reality Lab: http://sreal.ucf.edu
Affiliate, Computational Imaging Lab: http://cil.cs.ucf.edu
Co-PI, TeachLivE Lab: http://www.ucf.edu/teachlive
Cluster Lead: Learning Sciences
- Virtual Environments
  - Affective and Human-Centered Computing
  - Virtual, Augmented and Mixed Reality
  - Virtual Learning Environments

Other Experience
- Professor, Computer Science, Univ. of Tenn., 1974-80
- Assistant Professor, Comp. Sci., Penn State, 1972-74
- NRC Postdoctoral Research Associate, 1971-72

Professional Activities
- Entertainment Computing, Associate Editor, 2011-
- Journal of Cybertherapy and Rehab Scientific Board, 2009-
- IEEE VR Program Committee, 2012-15, 2017-
- IEEE VR, co-chair, Research Demos, 2013
- HCII Program Committee, 2008-15
- ISMAR 2009 Tutorial Chair; Program Committee, 2009-13.
- Reviewer for NSF, and various journals and conferences

Honors & Awards
- National Center for Simulation Hall of Fame, Inducted in 2020
- Pegasus Professor, UCF 2007
- ACM SIGGRAPH Pioneer
- ACM SUI Best Paper Award, 2018
- IEEE SeGAH Best Paper Award, 2016
- ICM Grand Challenge People’s Choice Award, 2015
- Best Publication Award from the Teacher Education Division of the Council for Exceptional Children, 2015
- Dean’s Research Professorship Award, 2013
- Excellence in Research, CECS 2014
- UCF Research Incentive Award, 2013, 2007, 1995
- Undergraduate Teacher of the Year, UCF 2001
- Excellence in Undergraduate Teaching, UCF 2001, 1992
- Senior Life Member, IEEE, & Senior Life Member, ACM
Sumit Kumar Jha

Associate Professor
United States Citizen
Ph.D., Computer Science; Carnegie Mellon University, 2010
B.Tech. (Honors), Computer Science and Engineering, IIT Kharagpur, 2004
Certificate in Quantitative Finance (CQF), 2012

Contact
jha@eecs.ucf.edu
407-882-2215

Research
http://www.cs.ucf.edu/~jha
- Artificial Intelligence
- Emerging Architectures
- Quantum Computing
- Computational Finance

Other Experience
- Air Force Young Investigator Program 2016-2019
- AFRL Informational Directorate Visiting Faculty, Rome, 2018
- Air Force Summer Faculty Fellow, AFRL, Rome, 2014
- AFRL Informational Directorate Visiting Faculty, Rome, 2013
- General Motors R&D, Detroit, 2005

Professional Activities
- Invited Speaker at the International Conference on Computational Advances in Bio and Medical Sciences, 2017
- Invited Panelist at the SRC SemiSynBio EDA/DBA (electronic/biological design automation) meeting, Edinburgh, UK, 2016
- Invited Speaker at the Numerical Software Verification (NSV) meeting, Vienna, 2014
- Member, Alpha Quant Club, 2010-2011
- Invited Speaker, BioPathways Workshop, International Conference on Systems and Molecular Biology, 2010

Research Grants
- Over $2 million in research funding over the last 5 years from NSF, Air Force, Royal Bank of Canada and Oak Ridge National Laboratory and other sponsors that do not want to be named.
- Export-controlled and ITAR projects.

Honors and Awards
- Best Paper Award, Foundations in Security and Privacy (FPS), 2017
- Air Force Young Investigator Award April 19, 2016
- IEEE ICCABS Best Paper Award 2014
- IEEE ICCABS Best Paper Award, 2010
- Carnegie Mellon Graduate Research Fellowship, 2004-2010

Joseph J. LaViola Jr.

Charles N. Millican Professor of Computer Science
Ph.D., Computer Science; Brown University, 2005
Sc.M., Applied Mathematics; Brown University, 2001

Contact
jl@cs.ucf.edu
407-882-2285

Research
Director, Interactive Computing Experiences Research Cluster:
http://www.eecs.ucf.edu/isuelab/
- Virtual and Augmented Reality
- Pen and touch-based user interfaces
- 3D user interfaces
- Usability analysis

Other Experience
- Director of the Modeling & Simulation Graduate Program at UCF, 2016 - 2018
- Adjunct Associate Professor of Research, Brown University, 2006-Present
- Founder, Fluidity Software, Inc., Somerville, MA, 2006-Present
- Founder, JIL Interface Consultants, Inc., Oviedo, FL, 2000-Present

Professional Activities
- Senior Member, ACM, IEEE Computer Society
- Associate Editor, ACM Transactions on Interactive Intelligent Systems

Honors & Awards
- UCF Scholarship of Teaching and Learning Award, 2017
- UCF Research Incentive Award, 2017
- UCF Reach for the Stars Award, 2014
- NSF CAREER Award, 2009

Research Grants

Selected Publications
Gary T. Leavens

Professor and Chair of the Dept. of Computer Science
PhD, Electrical Engineering & Computer Science; Massachusetts Institute of Technology, 1989

Contact
Leavens@ucf.edu
407-823-4758

Research
http://www.cs.ucf.edu/~leavens

- **Formal Methods in Software Engineering**
  - Specification of OO software components
  - Design of JML (see [www.jmlspecs.org](http://www.jmlspecs.org))
  - Theory of behavioral subtyping and specification inheritance.
- **Programming Languages**
  - Design and semantics of aspect-oriented programming languages.
  - Theory and design of multiple dispatch languages, including MultiJava (see [http://multijava.sourceforge.net](http://multijava.sourceforge.net)).
- **Computer Security**
  - Design of information flow security policy languages

Other Experience
- Professor, Iowa State University 1989-2007
- Member of Technical Staff, Bell Labs, 1977-84

Professional Activities
- Member of IFIP Working Group 1.9/2.15 (Verified Software) and IFIP WG 2.3 (Programming Methodology)
- General Chair, *Foundations of Software Engineering* 2018
- General Chair, *SPLASH* 2012 conference
- Program Co-chair, *VSTTE* 2010 conference
- Research Program Chair, *OOPSLA* 2009 Conference
- Co-editor-in-chief: *Transactions on Aspect-Oriented Software Development* (Springer), 2011-2013, now on editorial board
- Associate Editor: *Journal of Object Technology*
- Assistant Editor, *Software and Systems Modeling*
- Co-organizer of two international workshop series

Honors & Awards
- Upsilon Pi Epsilon honor society, 2011
- “Memorable Teacher”, College of LAS, Iowa State Univ., 2007
- Senior Member of the ACM, 2007
- Senior Member of the IEEE Computer Society, 2000
- IEEE Distinguished Visitor Program Speaker 2003-2005

Selected Publications
- For other papers see [https://www.cs.ucf.edu/~leavens/main.html](https://www.cs.ucf.edu/~leavens/main.html)

Fei Liu

Assistant Professor
Ph.D., Computer Science; University of Texas at Dallas, 2007

Contact
feiliu@cs.ucf.edu
407-823-3183

Research
http://www.cs.ucf.edu/~feiliu/

- **Natural language processing**
  - Summarization
  - Social media analysis
  - Language generation
  - Information extraction and retrieval
  - Spoken language understanding
- **Machine learning**
- **Data mining**
- **Data analytics and visualization**

Other Experience
- Senior Research Scientist, Bosch Research, Palo Alto, California, 2011 – 2013

Professional Activities
- Area Chair, North American Chapter of the Association for Computational Linguistics (NAACL)

Honors & Awards
- Invited to participate in MIT Rising Stars in EECS (An Academic Career Workshop for nearly 60 top EECS women scholars in academia), 2015
- Special Performance Recognition Award, Bosch Research, 2012
- Eric Jonsson Distinguished Research Fellowship, 2007-11
- Academic Excellence Award, 2011
- The Aage and Margareta Moller Endowed Scholarship, 2010
Abhijit Mahalanobis

Assistant Professor
Ph.D., Computer Science; Carnegie Mellon University, 1987

Contact
Email: Abhijit.Mahalanobis@ucf.edu
Phone: 407 823 4999

Research https://www.crcv.ucf.edu/person/abhijit-mahalanobis/
- Pattern Recognition and Machine Learning
- Automatic Target Detection and Recognition
- Computer Vision Systems and Applications
- Integrated Sensing and Information Exploitation

Other Experience
- Senior Fellow, Lockheed Martin Corporation (2012-2018)
- Lead, Center of Excellent (COE) for advanced ATR and Video Analytics, Lockheed Martin Missiles and Fire Control, Orlando, FL (2000-2012)
- Assistant Professor (Dept of ECE, Univ. of MD, Univ. of Az) 1987-1991
- Associate Editor for Applied Optics
- Division Chair, OSA Board of Meetings (3 year term)
- Conference Chair, SPIE Conference on ATR

Honors & Awards
- Recipient of DARPA Young Faculty Award (2019)
- Fellow of IEEE,
- Fellow of OSA
- Fellow of SPIE
- Recipient of Minority Scientist of the Year Award (2006)
- Lockheed Martin NOVA award (2006)

Dan C. Marinescu

Professor
Ph.D., Electrical Engineering and Computer Science; Polytechnic Institute, Bucharest, 1975

Contact
dcm@cs.ucf.edu
407-823-4860

Research http://www.cs.ucf.edu/~dcm/
- Scheduling
- Workflow Management and Grid Computing
- Parallel Algorithms and Performance Evaluation of Parallel and Distributed Systems
- Quantum Computing and Quantum Information Theory
- Cloud Computing

Other Experience
- Professor of Computer Science at Purdue University from 1984-2001
- Associate Professor of EECS, Polytechnic Institute
- Senior Researcher, Institute for Atomic Physics of the Romanian Academy of Science.
- Adjunct Professor, Tsinghua University, Beijing
- Visiting Faculty at several institutions and universities.
- Journal/Book Publications:

Honors & Awards
- Author of “Approaching Quantum Computing” which was co-authored with Gabriela M. Marinescu and was awarded the prize of the Romanian Academy of Science for Informatics in 2004.
- Ernest T.S. Walton Award, Science Foundation of Ireland, 2007
- Fulbright Expert
Ryan McMahan

Associate Professor
Ph.D., Computer Science; Virginia Tech, 2011

Contact
rpm@ucf.edu

Research
eXtended Reality & Training (XRT) Lab: coming soon
- eXtended and Virtual Reality (XR & VR)
- Training and Cyberlearning
- Human Computer Interaction (HCI)
- Computer Graphics

Other Experience
- Associate Professor, University of Texas at Dallas, 2018-2019
- Assistant Professor, University of Texas at Dallas, 2012-2018

Professional Activities
- Associate Editor, *IEEE Transactions on Visualization and Computer Graphics (TVCG)*
- Associate Editor, *International Journal of Human-Computer Studies (IJHCS)*
- Organizing Committees: VR 2007-08, 14-16, 18; 3DUI 2016-17; SUI 2017
- Advisory Board: MyndVR, LLC; SURVIVR PBC

Honors & Awards
- Faculty Early Career Development (CAREER) Award, National Science Foundation, 2016 – 2021
- Provost’s Award for Faculty Excellence in Undergraduate Research Mentoring, University of Texas at Dallas, May 2016
- Outstanding Faculty Teaching Award, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, May 2016
- Internet of Things (IoT) Technology Research Award, Google, April 2016

Johnathan Mell

Assistant Professor
Ph.D., Computer Science, University of Southern California, 2020

Contact
Johnathan.Mell@ucf.edu

Research
- Human-Computer Interaction
- Negotiation
- Socially-Aware Agents
- Computation in Games
- Computational Emotion

Other Experience
- Visiting Researcher, USC Institute for Creative Technologies, 2020
- VP, Software Engineering Data Analytics, Custom Technologies LLC, 2016-2020
- Technical Sales Engineer, Q-Net Security, 2020
- Professional Intern, The Walt Disney Company, 2015

Professional Activities
- Demonstrations, Chair, Automated Negotiating Agents Competition, 2018-2019
- Organizing Committee Member, Automated Negotiating Agents Competition, 2016- present
- Member, AAAC AAAI, IEEE, IGDA, ACM

Honors and Awards
- Best Demonstration Finalist, AAMAS 2016
- Best Paper Finalist, Socially Interactive Agents AAMAS 2018
David Mohaisen

Associate Professor
Ph.D., Computer Science; University of Minnesota, 2012

Contact
mohaisen@ucf.edu

Research
Homepage: http://cs.ucf.edu/~mohaisen/

- Systems security and online privacy
  - Internet of thing security and privacy
  - Blockchain systems security and applications
  - VR/AR security and privacy
  - Distributed denial of service attacks and defenses
  - Malware analysis and detection
  - Adversarial and applied machine learning

Other Experience
- Visiting Research Faculty, AFRL, Summer 2017
- Visiting Researcher, Georgia Institute of Technology, 2017
- Faculty Fellow, AFRL, Summer 2016
- Assistant Professor, SUNY Buffalo, 2015 – 2017
- Senior Research Scientist, Verisign Labs, 2012 – 2015
- Researcher, ETRI, 2007 – 2009

Professional Activities

Honors & Awards
- Best Paper Award, IEEE Systems Journal 2020,
- Best Paper Award, IEEE DSC (runner-up),
- Best Paper Award, ACM DLoT 2018,
- Senior ACM Member (2018) and Senior IEEE Member (2015)
- Best Student Paper Award, IEEE ICDCS 2017
- US Air Force Summer Faculty Fellowship, 2016
- Best Paper Award, WISA 2014
- Best Poster Award, IEEE CNS 2013
- Dissertation Fellowship, University of Minnesota, 2011

Sumanta Pattanaik

Associate Professor
Ph.D., Computer Science;
Birla Institute of Technology and Science, Pilani, India, 1993

Contact
sumant@cs.ucf.edu
407-823-2638

Research

- Medical Volume Visualization
- Real-time Realistic Rendering, Material Modeling
- Nature Rendering
- Interactive Global Illumination
- High Dynamic Range Imaging & Display

Other Experience
- Visiting Faculty: University of Southern California, Summer and Fall 2015; Yale University, Fall 2008; University of Girona, Spain, Spring and Summer 2009.
- Research Associate, Program of Computer Graphics, Cornell University, 1995-2001
- INRIA Post-Doctoral Fellow, IRISA-INRIA, Rennes, France, 1993-1995
- Senior Staff Scientist, National Center for Software Technology (NCST), Bombay, India, 1985-95

Professional Activities
- Program Committee Member: I3D 2017, SCCG 2017.

Honors & Awards
- UCF TIP Award, 2011.

Active Grants
- NSF Grant- 2012-2017: A Unified Approach to Material Appearance Modeling
- UArizona-DARPA Grant (2016-2018). REVEAL: Light Field Measurement and Exploitation at Information Theoretic Limits

Recent Book

Recent Publication
Yogesh Singh Rawat

Assistant Professor
Ph.D., National University of Singapore, 2017

Contact
yogesh@crcv.ucf.edu
407-435-0999

Research
• Deep Learning for Computer Vision
• Video Understanding
• Human Activity Detection
• Multimedia Computing
• Media Aesthetics

Other Experience
• Postdoctoral Associate
  University of Central Florida, 2017-2019
• Senior Member Technical Staff
  Mentor Graphics, India, 2009-2012

Professional Activities
• Tutorial organizer at CVPR 2019, Capsule network for computer vision.

Honors & Awards
• DARPA award, KAIROS, 2019
• Runners-up, ActEV Challenge for Activity Detection, TRECVID, Nov 2018
• Second runners-up, ActEV Challenge for Activity Object Detection, TRECVID, Nov 2018
• Research Achievement Award for outstanding research performance, NUS, Jan 2016
• Finalist at ACM Multimedia Grand Challenge, Amsterdam, Oct 2016
• Finalist at ACM Multimedia Grand Challenge, Orlando, Nov 2014

Dirk Reiners

Associate Professor
Ph.D., Technical University of Darmstadt, 2002

Contact
dirk.reiners@ucf.edu
407-823-1397

Research
• Rendering Systems for Virtual and Augmented Reality
• Immersive Display Systems
• Interactive Visualization of Large Data
• Applications of Virtual and Augmented Reality

Other Experience
• CTO, CG Heroes LLC, 2018-
• Associate Professor, University of Arkansas at Little Rock, 2015-2019
• Assistant / Associate Professor, University of Louisiana at Lafayette, 2006-2015
• Assistant Professor, Iowa State University, 2003-2006
• Senior Researcher in Virtual Reality Rendering, Fraunhofer Institute for Computer Graphics, Darmstadt, Germany, 1994-2003

Professional Activities
• Papers Chair: ICAT 2016
• Associate Editor, VR and Industry, Frontiers in Virtual Reality Journal
• Panel Reviewer NSF
• Organizing Chairs Committee: IEEE Virtual Reality 2019 (Best Dissertation Co-Chair), 2017 (Workshop Chair), 2016 (Exhibits Chair), 2015 (Research Demo Chair), 2014 (Workshop Chair), 2009 (Local Co-Chair); ISMAR 2018 (Sponsorship Chair), ICAT 2016 (Local Co-Chair)
• Program committee member: IEEE VR (2020-2008), ISMAR, others
• Reviewer: IEEE VR, ACM SIGGRAPH, VRST, ISMAR, 3DUI, AutoUI, others

Honors & Awards
• Best Paper Award, IEEE Virtual Reality 2009
• Best Paper Award, IITSEC 2005
• Winner, Sikorsky Entrepreneurial Challenge 2014 (with Dirk Reiners and Don Pierce)
• Invited Presentations at VRDays Europe 2018, Virtual Reality Summit, Seoul, South Korea, June 2016
Mubarak A. Shah

Trustee Chair Professor
Ph.D., Computer Science; Wayne State University, 1986
Secondary Joint Appointment in College of Optics and Photonics
Secondary Joint Appointment in Department of Mathematics

Contact
shah@crcv.ucf.edu
407-823-5077
Assistant: Cherry Place 407-823-4952

Research
Center for Research in Computer Vision: http://crcv.ucf.edu/
- Video Surveillance and Monitoring
  - Visual Tracking
  - Scene and Object Recognition
  - Human Activity Recognition
  - UAV Video Analysis
- Video Registration
- Video Categorization and Segmentation
- 3D reconstruction
- Content-based Video Retrieval

Professional Activities
- Associate Editor ACM Computing Surveys, 2006-2015
- Program Co-Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2008

Honors & Awards
- NGA (National Geo-spatial Intelligence Agency) Best Research Poster award at NARP Symposium Award, 2013.
- University Excellence in Research Award, 2005, 2012, 2017
- CECS Advisory Board Award for Faculty Excellence, 2011
- Scholarship of Teaching and Learning Award, 2011
- UCF Distinguished Researcher Award, 2007
- SANA Award, 2007
- Pegasus Professor Award, 2006
- UCF Research Incentive Award, 2003, 2009
- ACM Distinguished Speaker (DSP), 2008-2014.
- IEEE Distinguished Visitors Program Speaker, 1997-2000
- Engineering Achievement Award, Harris Corp. Information Systems Div., 1999
- Outstanding Engineering Educator, IEEE 1997
- UCF Teaching Incentive Program Award, 1996, 2003

Yan Solihin

Director, Cybersecurity & Privacy Cluster
Charles N. Millican Chair Professor
Ph.D., Computer Science; University of Illinois at Urbana-Champaign, 2002

Contact
Yan.Solihin@ucf.edu
407-823-4191

Research
Homepage: https://sites.google.com/view/arpers
- Secure Execution Environment
  - Trustworthy cloud, enclaves
  - Side channels (microarchitecture, timing, caches, etc.)
  - Memory encryption and integrity verification
- Computer Architecture
  - Parallel and multicore architecture
  - Memory hierarchy and memory systems
  - Persistent memory

Professional Activities
- General Co-Chair, IEEE Intl. Symp. on Workload Characterization (IISWC), 2019.
- Steering Committee Chair, IISWC.
- NSF Program Director, 2015-2018
- Notable Presentations
  - Keynote Presentation at ISLVLSI 2019
  - ECE Distinguished Lecture, GWU, 2019
  - Keynote Presentation at Future Digital Finance, 2019
  - Cadence Distinguished Speaker, 2018
  - Keynote Presentation at ICCD 2017
  - Keynote Presentation at IEEE SmartCloud 2017
- GWU ECE Advisory Board member, 2018 - present

Honors & Awards
- ACM Distinguished Speaker (2019-2022)
- ISCA Hall of Fame (2018)
- HPCA Hall of Fame (2011)
- IEEE Fellow (2017)
- MICRO Best Paper Runner-Up (2017)
- Outstanding mentoring of young faculty (2016)
- ISPASS Best Paper Finalist (2013)
- IPDPS Best Paper Finalist (2012)
- IEEE Micro Top Picks (2011)
- IBM Faculty Partnership Award (2010, 2005)
- Waseda GCOE Visiting Professor (2008)
- HPCA Best Paper Finalist (2005)
- NSF CAREER Award (2004)
Gita R. Sukthankar

Associate Professor
Ph.D., Robotics; Carnegie Mellon University, 2007

Contact
gitars@cs.ucf.edu
407-823-4305

Research
http://www.cs.ucf.edu/~gitars/
http://ial.cs.ucf.edu/

- Multi-agent systems
- Machine learning
- Activity/planning recognition for:
  - Games and simulation systems
  - Assistive technologies
  - Human-robot interaction
- Social-computational systems

Other Experience
- HP Labs - Cambridge Research Laboratory
  Member of Research Staff, 2000–2003
- PARC – Sabbatical Visitor, 2015-2016

Professional Activities
- IFAAMAS Board of Directors (2016-2022)
- General chair, AAAI Conference on AI and Interactive Digital Entertainment (2013)
- Edited books Plan, Activity, and Intent Recognition: Theory and Practice and Social Interaction in Virtual Worlds

Honors & Awards
- UCF Reach for the Stars Award (2015)
- CECS Dean's Research Professorship Award (2013)
- UCF Research Incentive Award (2013)
- UCF Faculty Excellence for Doctoral Mentoring (Engineering and Sciences) (2012)
- ACM and IEEE Senior Member
- CECS Distinguished Researcher (asst. professor), 2010
- Charles N. Millican Faculty Fellow (2010, 2012)
- DARPA Computer Science Study Group, (2009)
- NSF CAREER (2009)
- Air Force Young Investigator Program (2009)
- ONR Summer Faculty Fellow (2008)

Sharma Thankachan

Assistant Professor
Ph.D., Computer Science;
Louisiana State University, 2014

Contact
sharma.thankachan@ucf.edu

Research
http://www.cs.ucf.edu/~sharma/

- Parallel and External Memory Algorithms
- Algorithms for Sequence Analysis, Motivated from Applications in Bioinformatics
- Advanced Data Structures for
  - Succinct/Compressed Text (String) Indexing
  - Information Retrieval and Databases
  - Geometric Range Query Problems

Other Experience
- Post-Doctoral Fellow (2014-2014): School of Computer Science, University of Waterloo, Canada

Professional Activities (Program committee member)
- BCB 2017: ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics.
- HiCOMB 2017: 16th IEEE International Workshop on High Performance Computational Biology
- ICCABS 2017: IEEE International Conference on Computational Advances in Bio and Medical Sciences.

Honors & Awards
- Dissertation year Fellowship (2013-2014), Louisiana State University.

Active Grants
- NSF grant (2017-2020): Sequential and Parallel Algorithms for Approximate Sequence Matching with Applications to Computational Biology ($ 290,000)
Damla Turgut

Charles N. Millican Professor of Computer Science
Ph.D., University of Texas at Arlington, 2002
Secondary Joint Appointment in Electrical & Computer Engineering

Contact
turgut@cs.ucf.edu
407-823-6171

Research
http://www.cs.ucf.edu/~turgut

• Wireless networks
• Value of information (VoI)
• Ad hoc, sensor, underwater & vehicular networks
• Internet of Things (IoT)
• Value of information & Augmented Reality
• Smart cities & IoT-enabled healthcare
• Data analytics and machine learning

Other Experience
• Visiting Researcher: KTH, Sweden (2018-2019), University of Rome – La Sapienza, Italy (2012); Imperial College, UK (2011)
• Assistant Instructor, Dept. CSE, UT Arlington, 1999-2002
• Faculty Associate, CAESAR, UT Arlington, 1997-1998

Professional Activities
• Associate Editor: Elsevier Ad Hoc Networks
• General Chair: IEEE LCN
• TPC Chair/Co-Chair: IEEE CCNC, GLOBECOM, ICC, LCN
• Panel Reviewer: NSF, NSERC, Austrian Science Fund

Honors & Awards
• UCF Research Incentive Award (RIA) (2019)
• UCF Women of Distinction Award (2018)
• University Excellence in Professional Service Award (2017)
• UCF Teaching Incentive Program (TIP) Award (2017, 2009)
• Featured in 2015 UCF Woman Making History
• UCF ISTEM Faculty Fellow (2014)
• Best paper award, IEEE ICC 2013

Selected Publications

Liqiang Wang

Associate Professor, Graduate Coordinator
Ph.D., Computer Science; Stony Brook University, 2006

Contact
lwang@cs.ucf.edu
407-823-3187

Research
http://www.cs.ucf.edu/~lwang/

• Big Data, Cloud Computing, and High-Performance Computing
• Performance and Scalability Optimization
• Big Data Analytics
• Machine Learning
• AI Security
• Robustness and Resilience
• Distributed Machine Learning

Other Experience
• Visiting Research Scientist (Sabbatical Leave), IBM T.J. Watson Research Center, 2012-2013
• Professor (Associate, Assistant), Computer Science, University of Wyoming, 2006 – 2015

Professional Activities
• Chair, the 15th IEEE International Conference on Pervasive, Intelligence and Computing (PICom 2017, 2018)
• Doctoral Symposium Chair, the 2018 IEEE International Conference on Cloud Engineering (IC2E)
• Chair, IEEE International Workshop on Scientific Workflows and Big Data Sciences (SWF), 2010-2014
• Track Chair, IEEE Cloud Computing 2016, ICWS 2017
• Senior TPC Member, IEEE BigData 2014, 2017-2019
• Guest Editor: Journal of Security and Communication Networks.
• NSF Committee on Software Infrastructure for Heterogeneous Computing, 2016, 2017
• Panel Reviewer: NSF, NASA, Research Grants Council (RGC) of Hong Kong

Honors & Awards
• Best Paper Award, IEEE CyberSciTech, 2018
• Overseas Scholars Collaborative Research Award, NSFC, 2014
• Castagne Faculty Fellowship Award, 2013-2015
• NSF CAREER Award, 2011
• NSF TeraGrid Fellowship, 2009
• Best Paper Award, IBM Verification Conference, 2005
Gregory F. Welch

Pegasus Professor and AdventHealth Endowed Chair in Healthcare Simulation
Ph.D., Computer Science; UNC Chapel Hill, 1996
Primary Appointment: College of Nursing
Secondary Appointment: Department of Computer Science
Secondary Appointment: Institute for Simulation & Training
Adjunct Appointment: UNC Chapel Hill, Computer Science

Contact
gwelch@ucf.edu
407-796-2823

Research
Co-Director, Synthetic Reality Lab: http://sreal.ucf.edu
• Virtual and Augmented/Mixed Reality
  • Human motion tracking/capture systems
  • Displays (head-worn, fixed, projector-based, etc.)
• Human-Computer Interaction
  • Human surrogates (virtual and physical avatars)
  • Interactive computer graphics systems and devices
• Healthcare applications
  • Patient simulation systems
  • Situational awareness during procedures
• Stochastic estimation (Kalman filters, etc.)

Other Experience
• Research Professor (Associate, Assistant), Computer Science, UNC Chapel Hill, 1996–2012
• Northrop Defense Systems Division, 1990–1992
• NASA Jet Propulsion Laboratory, 1987–1990

Professional Activities
• Associate Editor of journals Presence: Teleoperators and Virtual Environments and Frontiers in Virtual Environments
• IEEE VR 2018 & 2019 Program Co-Chair
• IEEE VR 2013 General Co-Chair
• ISMAR 2012 General Co-Chair
• Dagstuhl Seminar on “Virtual Realities” (2008, 2012)
• Over 150 refereed publications, 12 patents, several pending
• Internationally-recognized “Kalman filter” web site

Honors & Awards
• UCF Chapter of National Academy of Inventors
• IEEE Technical Expert for Virtual, Augmented and Mixed Reality 2018
• IEEE Outstanding Performance, Co-Chair, VR 2013
• 1995 “An Introduction to the Kalman Filter” cited over 8,000 times according to Google Scholar
• Senior Member, IEEE Computer Society and Member, ACM
• Pioneer, ACM SIGGRAPH
• Excellence in Teaching award, UNC-Chapel Hill, 2007

Elaine Weyuker

University Distinguished Professor
Ph.D., Computer Science; Rutgers University, 1977

Contact
Elaine.Weyuker@ucf.edu

Research
Dr. Weyuker’s research interests focus on broad areas of software engineering, and particularly software fault prediction, software testing and software metrics and measurement. She is known for doing large industrial empirical studies to validate many of her proposed research solutions. In an earlier life, Dr. Weyuker did research in Theory of Computation and is the co-author of a book "Computability, Complexity, and Languages" with Martin Davis and Ron Sigal.

Other Experience
Prior to joining UCF in 2017 Dr. Weyuker was an AT&T Fellow and Distinguished Member of the Technical Staff doing software engineering research at AT&T Labs. Earlier, she was a professor of Computer Science at NYU's Courant Institute of Mathematical Sciences.

Professional Activities
Dr. Weyuker has served as a member of the Rutgers University Graduate Dean's Advisory Board since 2004, served as the chair of ACM's Council on Women in Computing (ACM-W) from 2004-2012, as a member of the Executive Committee of the Coalition to Diversify Computing from 2003-2016, as well as a member of the Board of Directors of the Computing Research Association from 2000-2005.

Honors & Awards
Dr. Weyuker has served as a member of the Rutgers University Graduate Dean's Advisory Board since 2004, served as the chair of ACM's Council on Women in Computing (ACM-W) from 2004-2012, as a member of the Executive Committee of the Coalition to Diversify Computing from 2003-2016, as well as a member of the Board of Directors of the Computing Research Association from 2000-2005.

In 2009 one of her publications won the ACM SIGSOFT Retrospective Impact Paper Award for a highly influential paper that has continued to have impact on the field for more than 25 years. Among her other awards are the AT&T Chairman's Diversity Award.
Pamela Wisniewski

Assistant Professor
Ph.D., Computer and Information Systems;
University of North Carolina at Charlotte, 2012

Contact
pamwis@ucf.edu
407-823-3189

Research
Socio-Technical Interaction Research Lab: https://stirlab.org
iUX Academy: http://www.cs.ucf.edu/ux/
Human-Computer Interaction (HCI), User Experience (UX), Social Computing, Privacy, and Adolescent Online Safety.

- Sociotechnical research at the intersection of understanding people and designing technologies to meet their needs
- Adolescent risk and resilience in online contexts

Other Experience
- Postdoctoral Scholar in the College of Information Science and Technology, the Pennsylvania State University, 2013-2015

Professional Activities
- Director of the Socio-technical Interaction Research (STIR) Lab and the industry User Experience (iUX) Academy
- Founding Member: Florida Interactive Computing Consortium, Cyberbullying Prevention Research Collaborative
- Advisor Board Member: Children’s Online Privacy and Commercial Use of Data
- Associate Editor/Program Committee: ACM’s Transactions on Social Computing, GROUP 2020, CHI 2019, CSCW 2019, CSCW 2018, GROUP 2020, GROUP 2018

Honors & Awards
- Marchioli Collective Impact Innovation Award, 2020
- ACM Senior Member, 2020
- William R. Jones Outstanding Mentor Award, 2020
- NSF CAREER Award, 2019
- UCF Reach for the Stars Award, 2019
- William W. Grant Early Career Scholars Award, 2018
- Inaugural Member of ACM’s Future Computing Academy, 2017
- Best Paper Honorable Mentions: CHI 2020, CSCW 2015, CHI 2014

Pawel Wocjan

Associate Professor
Ph.D., Computer Science
Karlsruhe Institute of Technology, 2003

Contact
wocjan@cs.ucf.edu
407-823-2844

Research
Interdisciplinary Research in Quantum Computing and Quantum Information Science
http://www.cs.ucf.edu/~wocjan

- Classical and Quantum Algorithms
- Quantum Information Theory
- Simulation of Quantum Systems
- Graph Theory

Other Experience
- Visiting Associate Professor, Center for Theoretical Physics, Massachusetts Institute of Technology, sabbatical leave 2012-2013
- Postdoctoral Scholar in Computer Science, Institute for Quantum Information, California Institute of Technology, 2004-2006
- Research Assistant, Department of Computer Science, University of Karlsruhe, Germany, 1999-2004

Professional Activities
- Panelist and Reviewer for National Science Foundation
- Reviewer for Journals on Quantum Computing and Quantum Information Theory

Honors & Awards
- National Science Foundation CAREER Award for “Algebraic Approach to the Design of Novel Quantum Algorithms” in 2008
- UCF Research Incentive Award in 2011
Annie S. Wu

Associate Professor
Ph.D., Computer Science and Engineering; University of Michigan, 1995

Contact
aswu@cs.ucf.edu
407-823-5922

Research
Director: UCF Evolutionary Computation Laboratory
http://www.cs.ucf.edu/~ecl/

- Genetic Algorithms
- Swarm Robotics
- Evolutionary Computation
- Complex Adaptive Systems
- Multi-agent Systems
- Machine Learning

Other Experience
- National Research Council Postdoctoral Research Associate, Naval Research Laboratory, 1996-1999

Professional Activities
- Editorial Board Member, Evolutionary Computation Journal
- Editorial Board Member, Memetic Computing Journal
- Panelist, National Science Foundation
- Program Co-Chair, Foundations of Genetic Algorithms X, January 2009
- Publicity Chair, 2008 Genetic and Evolutionary Computation Conference
- Executive Board, ACM Special Interest Group for Genetic and Evolutionary Computation (SIGEVO), 2005-2009
- Executive Board, International Society for Genetic and Evolutionary Computation, 2002-2004

Honors & Awards
- UCF Teaching Incentive Program Award, 2019
- Excellence in Graduate Teaching Award, UCF College of Engineering and Computer Science, 2017
- National Research Council Research Associateship Award, 1996-1999

Shibu Yooseph

Professor
Ph.D., Computer and Information Science; University of Pennsylvania, 1997

Contact
shibu.yooseph@ucf.edu
407-823-5307

Research
http://www.cs.ucf.edu/~syooseph/

- Algorithm design and combinatorial optimization
- Computational Biology and Bioinformatics: Genomics; Metagenomics; Sequence Assembly; Phylogenetics; Clustering and Ordination; Functional Genomics; Homology Detection; Biomarker Discovery; Machine Learning
- Microbiome research: Host-microbiome associations and mechanisms in the context of health and disease; Microbial diversity in different environments including water and air; Analysis and integration of ‘-omics’ data

Other Experience
- Human Longevity Inc. (2014-2016): Senior Director of Bioinformatics / Microbiome Lead
- J. Craig Venter Institute (2003-2016)
  o Professor of Informatics (2014-2016)
  o Director of Informatics, San Diego (2009-2011)
  o Associate Professor of Informatics (2009-2013)
  o Senior Computational Scientist (2003-2008)
- University of Southern California (1998-2000): Research Associate
- DIMACS, Rutgers University (1997-1998): Postdoctoral Fellow

Professional Activities
- On editorial board of Microbiome journal
- Ad-hoc reviewer for various journals including Nature, Nucleic Acids Research, Bioinformatics, and PLOS
- Served on several NSF and NIH Review Panels
- Program Committee member for several recent conferences including WABI 2019, BIOKDD 2019, AlCoB 2018, AlCoB 2017, and ICCABS 2017.

Honors & Awards
- Over 30,000 citations of research articles (source Google Scholar)
- Several publications recommended by Faculty of 1000
- GRASP algorithm featured in Biotechniques (2015)
- Postdoctoral Fellowship from NSF funded Program in Mathematics and Molecular Biology (1998-2000)
- Postdoctoral Research Fellowship from NSF funded DIMACS (1997-1998)
- Dean’s Fellowship (1992-1993)
Shaojie Zhang

Professor  
Ph.D., Computer Science;  
University of California, San Diego, 2007

Contact  
shzhang@cs.ucf.edu  
407-823-6095

Research  
Computational Biology and Bioinformatics  
http://www.cs.ucf.edu/~shzhang

Professional Activities  
• Program Committee Co-Chair, IEEE ICCABS 2017  
• Organizing Committee Member, IDASH Privacy & Security Workshop (2017, 2018)  
• Organizing Committee Member, RECOMB Satellite Conferences on Systems Biology and Computational Proteomics (2006)  
• Associate Editor, Frontiers in Bioinformatics and Computational Biology  
• Review Editor, Frontiers in Non-Coding RNA  
• Reviewer for Israel National Foundation, Austrian Science Fund, and Fonds de recherche du Québec – Nature et technologies  
• Member, The RNA Society  
• Member, The American Society of Human Genetics  
• Member, International Society for Computational Biology  

Honors & Awards  
• UCF Research Incentive Award, 2019  
• UCF Teaching Incentive Program Award, 2017  
• Faculty Member, Upsilon Pi Epsilon (UPE) Honor Society for Computing and Information Disciplines, 2016  
• Best Paper Award, ASP-DAC 2016  
• Best Paper Award, IEEE ICCABS 2012  
• J. Craig Venter Institute Summer Fellowship, 2006  
• California Institute for Telecommunications and Information Technology (CalIT2) Fellowship, 2001

Wei Zhang

Assistant Professor  
Ph.D., Computer Science;  
University of Minnesota-Twin Cities, 2015

Contact  
wzhang.cs@ucf.edu  
407-823-2763

Research  
http://server.cs.ucf.edu/compbio/  
• Computational Biology and Bioinformatics  
  o Cancer Transcriptome  
  o Biomarker Identification  
  o Post-transcriptional Regulation  
  o Drug Sensitivity Prediction  
• Machine Learning  
  o Network-based Learning  
  o Semi-supervised Learning  
  o Reinforcement Learning  
  o Transfer Learning

Other Experience  
• Research Intern, Takeda Pharmaceuticals Company (2014)

Professional Activities  
• ACM-BCB 2019 Workshop Chair  
• ICIBM 2020 Publication Chair  
• NSF panel member (2018-2020)  
• Reviewers for Nucleic Acids Research, Bioinformatics, PLoS One, BMC Bioinformatics, BMC Genomics, and others

Honors & Awards  
• NSF CRII (2018)  
• Best Poster Award, The 6th Annual Biomedical Informatics and Computational Biology Research Symposium (2014)

Selected Publications  
• Wei Zhang, Jeremy Chien, Jeongsik Yong, and Rui Kuang. Network-based Machine Learning and Graph Algorithms for Precision Oncology. npj Precision Oncology, 2017.  
• Jae-Woong Chang*, Wei Zhang*, Hsein-Sung Yeh, et al. mRNA 3’UTR Shortening is a Molecular Signature of mTORC1 Activation. Nature Communications, 2015.
Cliff C. Zou

Associate Professor
Program Coordinator, Digital Forensics Master Program
Ph.D., Electrical & Computer Engineering;
University of Massachusetts-Amherst, 2005

Contact
czou@cs.ucf.edu
407-823-5015

Research
Computer and Network Security
http://www.cs.ucf.edu/~czou/

Professional Activities
- Program Committee Member for dozens of conferences
- NSF panelist (2011,2016); NIH panelist (2014)
- Senior Member: IEEE

Honors & Awards
- Publications have more than 6100 citations according to Google Scholar Citation.
- Best Student Paper Award in conference ACSAC 2007.
- Received UCF Teaching Incentive Program (TIP) award, 2013.
- Undergraduate research project "Personal Medication Monitor" won the first price in the first annual UCF Inventing Entrepreneurs Innovation Competition (reported by UCF News).
- Paper "Honeypot detection in advanced botnet attacks" published in IJICS (2010) was reported by EurekAlert! News Service and The Register, respectively.
- Rootkit work (paper published in Securecomm'08) was reported by PCWorld (05/09/2008).
- Research published in NDSS'06 reported by “New Scientist Magazine”, Mar. 4, 2006 189(2541), pg. 32.
- Best Paper Award runner-up in PADS 2005.
- Best Paper Award runner-up in ICCCN 2004.
- Interviewed by National Public Radio (NPR) on our Internet worm research, September 2003