



Institute for Design and Manufacturing Innovation
The Henry Samueli School of Engineering

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JPF05053 Five Assistant (Tenure Track), Associate or Full (Tenured) Professor Positions in Science and Engineering of Advanced Manufacturing

The Institute for Design and Manufacturing Innovation (IDMI) in the Samueli School of Engineering is spearheading an effort to hire a cluster of 5 faculty members in the general field of Science and Engineering of Advanced Manufacturing. Appointments will be made in one of the departments of the School of Engineering. These positions will leverage significant campus resources in the area of Additive Manufacturing (<http://manufacturing.uci.edu>) and the world-class infrastructure in Materials Characterization (<http://imri.uci.edu>). The research expertise and interests of the candidates should align with at least one of the following areas:

- (1) Experimental Materials Science of Manufacturing Processes, with an emphasis on processing parameters/microstructure/properties relationships, metallic/ceramic/composite systems manufacturing (including emerging processes, such as 3D printing via coating technologies), as well as manufacturing of functional materials and systems. The development of characterization and/or modeling techniques at multiple length and time scales is of particular interest.
- (2) Design for manufacturing, including stochastic design, topology optimization, closed-loop control of processes, mechanical/physical modeling of manufactured components and computational modeling of manufacturing processes, including multi-scale, multi-physics models (e.g., solidification of complex systems).
- (3) Artificial Intelligence for manufacturing, in particular data driven modeling, design, and analysis techniques for smart manufacturing that encompass the essence of Industrial Internet of Things (IoT) and Industry 4.0. The area of expertise of the ideal candidate shall include but is not limited to: (i) Applications of Machine Learning and Artificial Intelligence (AI) for smart manufacturing systems; (ii) Manufacturing bigdata analysis for product, system, and process virtualization, control, diagnosis, and prognosis; (iii) Cognitive Digital Twin modeling, creation and maintenance; (iv) Data-driven intrusion detection techniques; (v) Knowledge-based system design for manufacturing; (vi) Manufacturing control system design that includes robots and human interactions through concept of reinforcement learning; (vii) Data-driven augmented and virtual reality system design for manufacturing. Candidates should demonstrate interest (and ideally a track record) in collaborating with experimental scientists, in particular candidates should be interested in collaborating extensively with all of the other hires in the cluster as well as existing faculty in IDMI and/or the Irvine Materials Research Institute (IMRI).
- (4) Control of advanced manufacturing processes, including the development and integration of advanced sensing techniques, in-situ and operando qualification of processes, big data-informed and physics-based techniques for validation and qualification of materials and structures. A potential area of interest is the integration of electrochemistry, corrosion science and surface engineering, with a manufacturing processes-centric approach.

(5) Design and fabrication of novel manufacturing processes and systems. The field of advanced manufacturing is progressing rapidly, with new processes and technologies developed at very high speed. We are seeking a scientist interested in the development of novel processes, including scalable nanomanufacturing, self-assembly techniques, advanced composite materials fabrication, hybrid (additive/subtractive) technologies, and technologies for the production of complex, highly hierarchical, multi-materials and multi-scale components.

Applicants are expected to have a doctorate from an accredited university in a relevant science or engineering discipline including Materials Science and Engineering, Electrical Engineering and Computer Science, or Mechanical and Aerospace Engineering. Applicants are asked to identify the specific area(s) under which they wish to be considered and should identify the desired home department within the school of engineering in their cover letter.

Successful candidates will be expected to develop a vigorous externally funded research program, maintain a strong publication record, advise students, provide outstanding teaching at the undergraduate and graduate levels, and contribute their leadership and innovative thinking toward an excellent science and engineering program within the department, the IDMI institute, the school and the university. Successful candidates will also be expected to contribute toward increasing the number of students (especially underrepresented minority students) pursuing graduate degrees in related programs. Finally, there is an expectation that successful candidates in this cluster will demonstrate interest and passion in working together and with existing faculty associated with the IDMI institute in pursuing multidisciplinary, large center-scale research projects. These positions can be at the Assistant, Associate or Full Professor level, with the expectation that most of the 5 hires will be at the Assistant Professor level.

Applications should include a cover letter, a description of research, teaching and service interests, including ability to contribute to departmental and interdisciplinary programs, in particular the IDMI institute, a curriculum vitae, and the names and contact information of at least 3 references. References will not be contacted until later stages of consideration, in consultation with the candidate. A separate statement that addresses past and/or potential contributions to diversity, equity and inclusion must also be included in the application materials.

The University of California, Irvine is part of the premier public university system in the world. UCI is a member of the Association of American Universities (AAU) and one of its only two Minority Serving Institutions, is ranked as a top ten public university by U.S. News and World Report, and was identified by the New York Times as No. 1 among U.S. universities that do the most for low-income students. UCI is located in Orange County, 4 miles from the Pacific Ocean and 45 miles south of Los Angeles. Irvine is one of the safest communities in the U.S. and offers a very pleasant year-round climate, numerous recreational and cultural opportunities, and one of the highest-ranked public-school systems in the nation.

The University of California, Irvine is an Equal Opportunity/Affirmative Action Employer advancing inclusive excellence. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, protected veteran status, or other protected categories covered by the UC nondiscrimination policy. A recipient of an NSF ADVANCE award for gender equity, UCI is responsive to the needs of dual career couples, supports work-life balance through an array of family-friendly policies, and is dedicated to broadening participation in higher education.

Applications must be received by January 10, 2018 to receive full consideration. All positions will remain open until filled.

Information about the Institute for Design and Manufacturing Innovation can be found at <http://manufacturing.uci.edu>. Information on the Samueli School of Engineering and its departments can be found at <http://engineering.uci.edu>.