Intel's 2022 Rising Star Faculty Award Program

Call for Nominations

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Program Summary

Intel is excited to announce the 2022 Rising Star Faculty Award which is a program available to our Strategic Universities by invitation only. *Please do not distribute this invitation outside of your university!*

Intel's Rising Star Award (RSA) provides an award of $50,000 and networking support to faculty members who are early in their academic careers and show great promise as future academic leaders. The purpose of this program is to help promote the careers of promising early career faculty members and to foster long term collaborative relationships with Intel.

Who Qualifies?

 ❖ Any full time, tenured or tenure track (or equivalent) faculty member (including research faculty and / or faculty lecturers);
 ❖ With 4 years or less cumulative experience as a full-time university faculty (as of Sep '22);
 ❖ From universities invited by Intel to participate in this program;
 ❖ Nominated by appropriate department head (limited to 2 per university);
 ❖ Has made significant contributions to either **Research and/or Education** that have the potential to be disruptive to the Semiconductor and Computing Industry in the areas outlined below;
 ❖ Has not previously been an RSA award recipient; and
 ❖ Has not been previously employed by *Intel for longer than 2 years (excluding internships).*

What Areas of Research / Education is Intel Interested In for this Award?

Innovative and disruptive ideas in computer science, electrical engineering, computer engineering, material science, and chemical engineering which have potential to significantly advance semiconductor technologies and the future of computing. Below are key topics of interest, however not exclusive :

 ➢ **Architecture :** CPU microarchitecture features for general-purpose IPC (Instructions per Cycle); Advanced hardware-optimizers for CPU performance and power efficiency; Platform architecture; Domain-specific accelerators; New memory technologies in the scope of architecture systems optimization; Neuromorphic computing; Quantum computing.

 ➢ **Device :** Energy efficient transistors (low voltage, power, and temperature): 2D PMOS, Ferro-Electrics for Energy Efficiency devices, "beyond-CMOS" (e.g., MESO (Magneto-Electric Spin-Orbit) transistor); Novel

patterning methods & materials that extend Moore's Law and/or the next generation of packaging technology.

➢ **Process :** CAD for future devices, system level gaps, system validation, AMS validation; Fundamental understanding of interactions between EUV photons and new resists systems designed to minimize variation for high resolution, defect-free printing.

➢ **Materials & Patterning :** Packaging materials and processing; Magnetic materials for high voltage inductors; fast deposition, low stress materials; Functional materials for ultra-fast or high aspect ratio via fill within core.

➢ **Software :** Software for heterogeneous hardware; Machine Programming; Human Technology Interactions, ambient computing and smart spaces; Unified programming models for distributed computing across Cloud, Edge, and Client including function compute and microservices.

➢ **Artificial Intelligence :** More capable AI: Enabling machines to exceed human-level performance. Efficient/sustainable AI: Scalable and efficient models and computing architectures; Future of work with AI: Including common sense reasoning, cognition, voice and vision technologies; compiler & runtime research for agile efficient mapping of machine/deep learning; new applications & usages: Evaluating emerging applications and use cases; Ethical AI.

➢ **Security :** Privacy; Hardware security; Autonomous systems and safety; Confidential computing; Cryptography; Automated tools and methodologies; Adversarial AI; Privacy-preserving AI.

➢ **Connectivity :** Wireless & networking: Fusion of wireless sensing & communications (passive & active radar, multi-use radios, self-awareness, human-machine interfaces, client & infrastructure); Programmable networks & microservices; Novel electrical interconnects; Photonic devices (modulators/photodetectors); Photonic packaging; Dense wavelength division multiplexing (DWDM) light sources (quantum dot/amplifiers).

➢ **Manufacturing :** Smart manufacturing/Industry 4.0; Autonomous digital supply chain; Supply chain gaming & planning; Supply chain transformation; Equipment productivity and modeling; Big data analytics for fault detection and yields; Low-cost inspection/metrology for smaller & 3-D package features.

We are particularly interested in candidates who are using _innovative methods of teaching_ as well as those candidates who are on the forefront of increasing the participation of women and underrepresented minorities in computer science and engineering.

What is the Award?
- A one-time award of $50,000. The award can be used for:
  - Travel expenses for networking opportunities with senior Intel technical leaders;
  - Travel expenses for opportunities to speak at Intel sponsored events;
  - The balance to be used at the discretion of the Honoree per university policy for research or curriculum development support (e.g., class material, conferences sponsorship, travel expenses, computer lab infrastructure, web site development, textbooks).

What is the Application/Selection Process?
- Send the following information for no more than two nominated faculty:

- o Name of nominee;
- o How long have they been teaching in academia and where;
- o General area of research the nominee is currently engaged in;
- o Why you think this professor should be considered for an award, such as:
  - An overview of the professor's publicly available research accomplishments during their time as a faculty member;
  - An overview of the professor's proposed research agenda for the next five years;
  - The professor's research direction and interests and how it will be disruptive to the computing industry;
  - How the professor is working to increase the participation of women and underrepresented minorities in science and engineering;
  - For faculty educators, what innovative teaching methods the professor is using and how their methods and leadership is advancing education in technology and semiconductor development;
  - Other awards the professor has received.
- Awardees will be selected by committee at Intel.
- Awardees will be required to sign an acceptance award letter.
- Please send nominee information to *Intel_University_Collaboration@intel.com;* please place nominee's name in subject line.
- **Timeline : Nominations will be accepted now through June 17th. Intel will communicate announcements of Awardees by September 10th.**

Disclaimers and Notice:

- o Implementation and management of this Program and associated awards is subject to change at any time without notice to nominators or nominees or Honorees and is at the complete discretion of Intel Corporation.
- o Honorees are responsible for confirming that acceptance of any awards will not be in violation of any university policy regarding such awards and that acceptance of any award is not in exchange for promotion or influence regarding any of Intel's commercial activities, products, services, or the adoption of Intel-related standards.
- o Any information collected as part of the Rising Star Award will be used for the administration of the Program. This may include sharing of any submitted information within Intel for purposes of selecting Honorees, planning visits, public relations (with prior approval), or other purposes reasonably related to the Program. Any information collected is also subject to Intel's privacy policy found at www.intel.com/privacy.

Contact Information

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