

Shaping the Future

Intel's Academic Collaborations

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University Research & Collaboration
Spring 2022





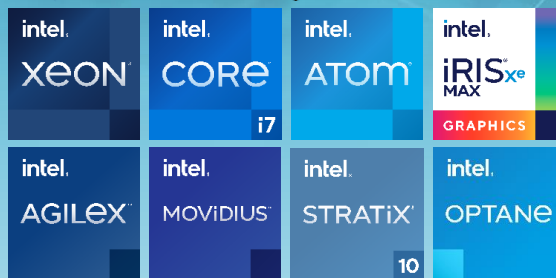
World-changing Technology

Our Purpose

We create world-changing technology
that enriches the lives of every person on Earth



Our Priorities



**Innovate
with boldness**

**Lead in every
category**

**Execute
flawlessly**

**Foster
vibrant culture**

We are positioning Intel for sustained growth and leadership
in an increasingly digital world



Our People



Customer First



Fearless
Innovation



Results Driven

Our Values



One Intel



Integrity



Quality



Inclusion

121,000+
employees

83%
technical

53
countries with intel employees

~70,000
patent assets worldwide

“The ingredient we start with is sand.
Everything else is value added by people.”

Andy Bryant

Former Intel Chairman

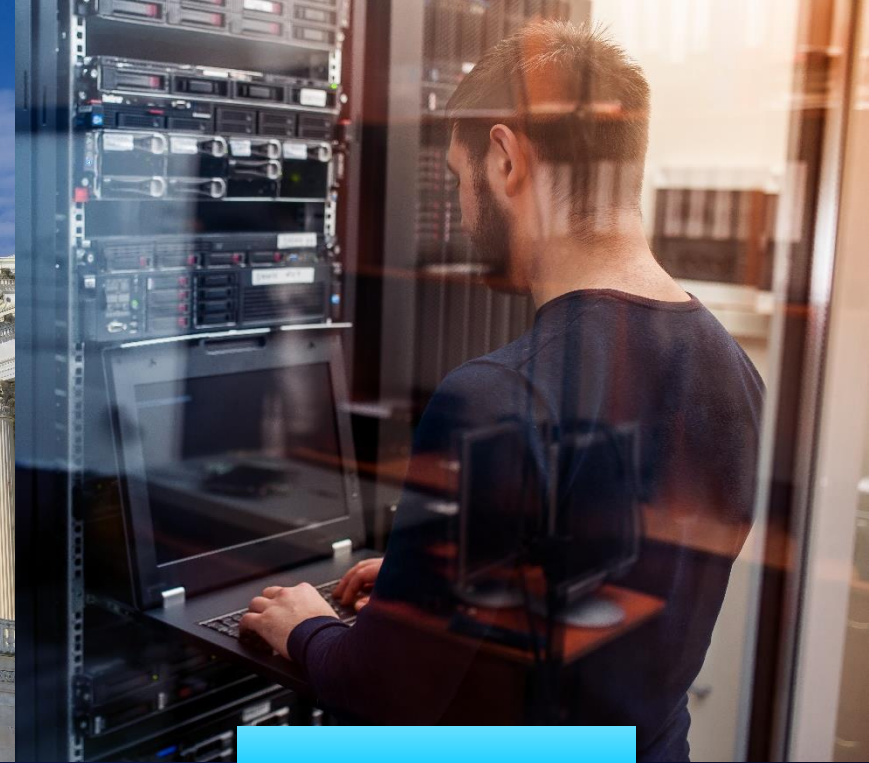




Academia



Governments



Industry

We Seek

Working With Leading Academic, Industry And
Government Research Institutions



Academic Outreach: Mechanisms

SENSE

Very Large Centers – Semiconductor Research Corp (SRC)

DARPA, NIST, NSF and 15 Industry Collaborators

Large Centers – Government Collaborations

NSF

TRANSFER

Midsize Centers – Research Innovation Pipeline

Intel Science and Technology Centers (ISTCs), Intel Collaborative Research Institutes (ICRIs), Intel Strategic Research Alliances (ISRAs)

Individual Grants – Problem Solving & Business Solutions

Strategic Research Sectors (SRS), Memberships/Industrial Affiliations

TALENT

Intel's Academic Mindshare

IA affinity & Community building

Diversity Higher Education

Campus Recruiting



We Solve

Key Research Focus Areas

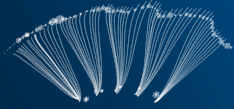


Trust, Security, & Privacy

Fully Homomorphic Encryption

Confidential Computing

Private AI



Emerging Workloads

AI - Population Scale Data



Next Wave of AI

AI for Optimization

Knowledgeable AI

Human & AI systems



Future of Software



NSF PPOSS
Machine Programming



Novel Sensing Technologies

4D Radar



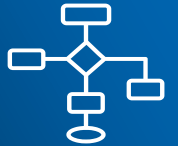
New Compute Models

Quantum

Neuromorphic



Advanced Memory & Storage



Efficient Design & Programming

Agile HW-SW
Co-design



Next-gen Connectivity, 5G & Beyond

Integrated Photonics



Advancing Manufacturing Leadership



High-performance Energy-Efficient Devices

Beyond CMOS

Heterogeneous Integ.

Achieve carbon neutral computing to

Intel's Mindshare at Universities

Drive Intel's Thought Leadership Into Academia to Foster and Develop a Pipeline of Students' Savvy On Intel Technology and Monitor Technology Inflections



CURRICULUM

Encourage the use of Intel technology in the classroom



STRATEGIC UNIVERSITIES

Continuously connected with key institutions



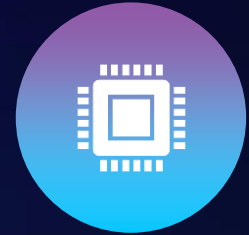
RECOGNITION AWARDS:

Outstanding Researcher (ORA)
Rising Star (RSA)
Faculty awards recognizing great collaborators and their connection with Intel



ACADEMIC COMPUTE ENVIRONMENT

Cloud computing access to Intel technology for research



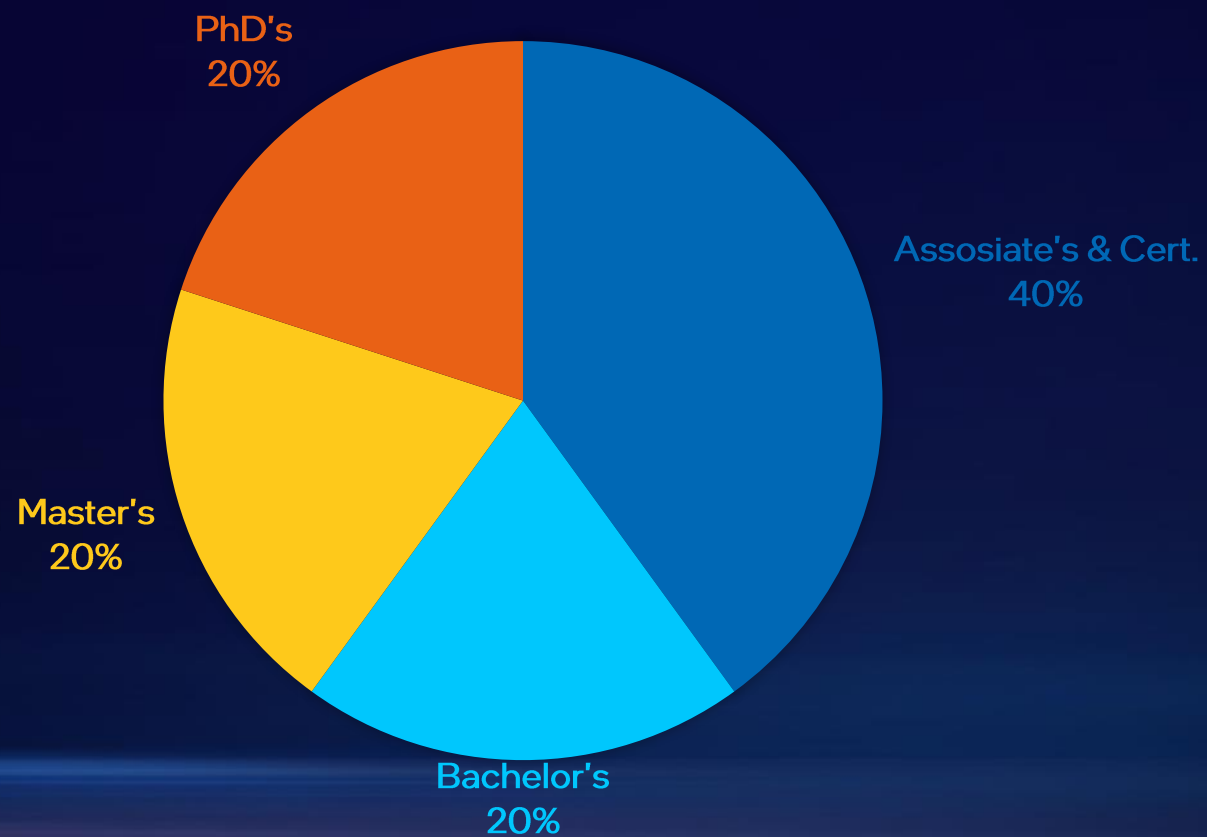
UNIVERSITY SHUTTLE PROGRAM

Offer new technologies and products through the IFS in partnership with leading academics

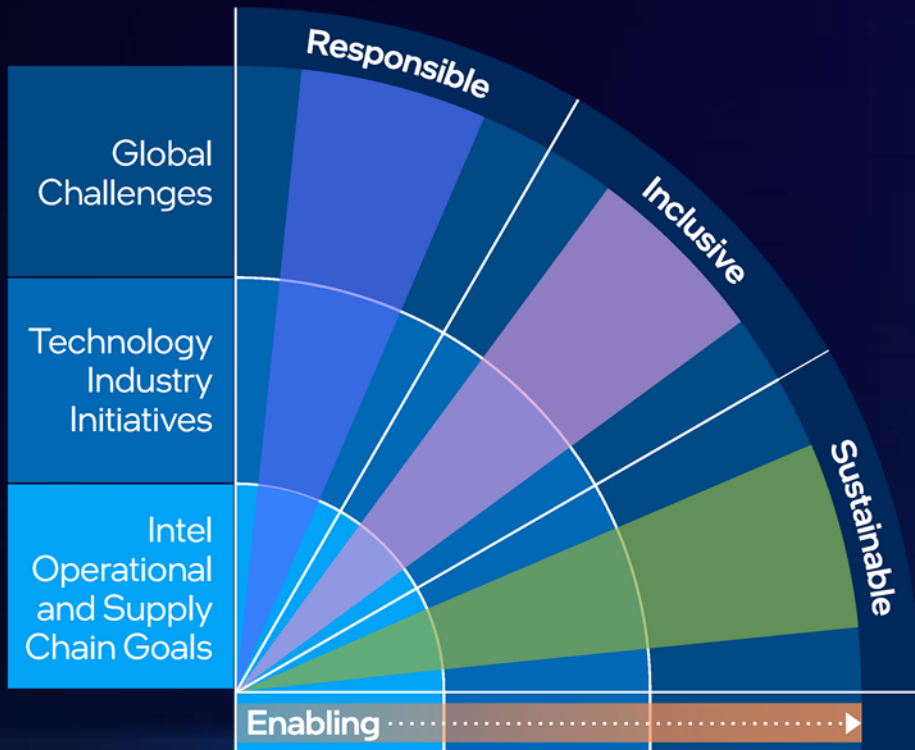


STEM Workforce Needs

U.S. JOBS



Making a Positive Impact On Society, Business, Planet



Responsible

Revolutionize how technology will help improve health and safety



Inclusive

Make technology fully inclusive and expand digital readiness



Sustainable

Achieve carbon neutral computing to address climate change



Enabling

Accelerate the ways we enable progress through our technology and the expertise and passion of our employees



Q&A



Our Academic Centers

Final year	Intel-NSF partnership
2020	Computer Assisted Programming for Heterogeneous Architectures – CAPA
2022	Machine Learning for Wireless Networking Systems (MLWiNS)
2022	Foundational CPU Microarchitecture - FoMR
2023	Resilient and Intelligent Next-Generation Systems (RINGS) –Start Q2'22
2025	AI Institutes for optimizations Committed, Start Q3'21
2026	PPOSS – Machine Programming
2032	Semiconductor Manufacturing and Design : Workforce and Research

Final year	Intel Science & Technology Centers (ISTCs)
2022	Next-Generation Heterogeneous 3D FPGAs for In-Network Computing
2022	Valleytronics: new promising 2D TMD materials
2023	Resilient Architectures and Robust Electronics (RARE)
2023	Integrated Photonics for Data Centers Interconnects
2024	MIT AI Data Systems (Google & Microsoft)
2024	FEINMAN: 2.0 Super Energy Efficient Devices enabled by Quantum Materials
2032	Semiconductor Education & Research for Ohio

Final year	Intel Collaborative Research Institutes (ICRIs)
2023	Intel Neuromorphic Research Community -INRC
2022	Intelligent Automated Connected Vehicles -IACV
2022	Save Automated Vehicles –SAVe
2022	Privacy Preserving ML
2023	Efficiency for very large AI Models
2024	Transformative Server Architecture

Final year	Intel Strategic Research Alliances (ISRAs)
2023	Transformative Hardware for Artificial Intelligence
2023	Frontiers of Cryptography
2023	High Contrast, Low Noise Resist Design for High NA EUV Patterning
2023	Improving Design Productivity for Domain Specific Architectures
2024	Center of Ferro-Electrics for Energy Efficiency
2024	Atomic Monolayer 2 D PMOS



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