Why Computer Science?

Why UW’s Paul G. Allen School?

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Today ...

• Our role in the state
  – Education
  – Research
  – Entrepreneurship

• Growing to meet the need
  – Degree capacity
  – Space
  – The Paul G. Allen School
  – The Global Innovation Exchange

• The bottom line

• Preparing for computer science in college

• Some obvious questions
Our role in the state: Education

• There is an insatiable demand for graduates with a broad range of backgrounds – there is an important role for every educational institution to play
  – There is a wide variety of tech positions – from tech support to high-end software engineer, with much in between
  – The tech industry employs many people in non-tech positions
  – Non-tech companies employ many people in tech positions
  – Just about every field requires tech fluency

• What’s driving our economy, though, are the leading-edge tech companies of all ages and sizes
  – Our home-grown companies, from Microsoft and Amazon, to Zillow and Redfin, to the hot startups
  – The more than 100 engineering offices of companies headquartered elsewhere, some of which have many thousands of employees (Google, Facebook)

• The people who power these companies – and who create the jobs for others – are highly capable software engineers

• UW CSE – the Paul G. Allen School – is by far the leading in-state producer of these people
• Two undergraduate programs
  – Computer Science (College of Arts & Sciences)
  – Computer Engineering (College of Engineering)

• Currently enrolling ~480 new undergraduates each year
  – Up from only 170 just a few years ago
  – Hopefully additional growth in next legislative session

• A strong sense of community, and a leader in diversity
  – Winner of the inaugural NCWIT award for success in encouraging undergraduate women

• We graduate students who can design and build stuff
  – Emphasis on teamwork and design
  – Heavy student participation in capstone design courses, summer internships, and faculty-guided research
    – #1 school in the nation in the past 10 years in students recognized in the Computing Research Association’s “Outstanding Undergraduate Researchers Award” competition
• Extraordinary students!
  – 2018-19 Arts & Sciences Dean’s Medal for the Natural Sciences: Hannah Werbel (CS)
  – 2018-19 UW Student Regent: Kaitlyn Zhou (CompE)
  – 2018-19 “Husky 100”: Caleb Ellington (CS), Alison Ng (CompE), Eugene Oh (CS), Mitali Palekar (CS)
  – 2018-19 Computing Research Association Outstanding Undergraduate Researcher Awards: Nelson Liu (CS), Kimberly Ruth (CompE), Pat Kosakanchit (CompE), Rowan Phipps (CS)
  – 2017-18 Engineering Dean’s Medal: Kaitlyn Zhou (CompE)
• June 2019 Allen School graduation ceremony
• Why a research university?
  –  We get students into the lab
  –  We make them our partners in discovery
  –  We prepare them for life-long learning at the forefront of knowledge and society
  –  *There is no field in which this is more important!*
Our role in the state: Research

• Ranked among the top half dozen of more than 200 research-oriented computer science programs
  • Stanford, Berkeley, MIT, Carnegie Mellon, UW, Cornell, Illinois, ...
• This pays off for undergraduates as well as graduate students
  • They are in the labs with us, pushing the state-of-the-art – that’s what makes them so highly prized
• Tight partnerships with many leading companies of all ages and sizes
• Note: Most of our graduate program alums do not head off to academic positions – they take positions at leading-edge tech companies in Washington
  • Microsoft and Google Seattle are by far the leading employers of our graduate program alums
Our role in the state: Entrepreneurship

- While education and research come first, entrepreneurship is alive and well
Growing to meet the need: Funded degrees per year
Growing to meet the need: The Bill & Melinda Gates Center, a second building for UW’s world-class Computer Science & Engineering program

- Doubles our space
- Vastly improved undergraduate facilities
- Vastly improved laboratory capabilities (e.g., a 3000 sf robotics lab)
- Architect: Seattle’s LMN Architects, architects for the Paul G. Allen Center
- General Contractor: M.A. Mortenson Company, general contractor for the Paul G. Allen Center
- Dedicated February 2019
- $74 million in private funds, including unprecedented levels of support from Microsoft, Amazon, Zillow, and Google – plus $17.5 million in state capital funds, $4 million in central UW funds
- An extraordinary campaign committee, led by Microsoft President Brad Smith
Growing to meet the need: The Paul G. Allen School of Computer Science & Engineering

• Established March 2017
• A $50 million endowment ($40 million from Mr. Allen, $10 million from Microsoft)
  – Provides critical seed funding to catalyze new initiatives in education and research, keeping UW CSE at the forefront, to the benefit of students, UW, and the region
Growing to meet the need: The Global Innovation Exchange

• A global partnership, envisioned by Microsoft President Brad Smith
  – University of Washington, Tsinghua University, École Polytechnique Fédérale de Lausanne, Hong Kong University of Science and Technology, Indian Institute of Science, Korea Advanced Institute of Science & Technology, National Taiwan University, Technion - Israel Institute of Technology, Tecnológico de Monterrey, University of British Columbia
  – Microsoft, Arm, Baidu, Boeing, HorizonX, T-Mobile

• Project-based Masters degrees combining technology, design, and entrepreneurship in a global context

• GIX’s home – the Steve Ballmer Building – opened in September 2017 in Bellevue’s Spring District

• Curriculum design and laboratory design led by Shwetak Patel (Paul G. Allen School + EE)
The bottom line

- Computer science is a field with unmatched “change the world” potential
- An education in computer science is great preparation for pretty much anything
- There are some OK reasons to go out-of-state for college
  - Get away from your boyfriend/girlfriend
  - Get away from your parents
  - Get away from the rain

**Getting a better computer science education is not one of them!**
Preparing for computer science in college

• Not necessarily a high school computer science course

• Deep comfort with algebra
• Scientific reasoning
• Reading comprehension

• Attention span
• Resilience when faced with challenges
Obvious questions

- Computer Science vs. Computer Engineering
- Direct-to-Major admission and Direct-to-College admission
- Related programs at UW