

# CHRISTOPHER H. GREGG, PH.D.

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## PROFESSIONAL PROFILE

I am a computer science lecturer, interested in the pedagogy of introductory computer science. I teach courses up to and including the core systems courses for the Stanford undergraduate curriculum, and I teach a seminar on teaching introductory computer science. I have written a book, *Your First Year Teaching Computer Science*, which is geared towards new computer science instructors joining the field. My Ph.D. focus was on computer architecture, primarily looking at heterogeneous scheduling of shared work between CPUs and GPUs. Current research involves developing tools to leverage machine learning for automatic syntax error correction on student examinations to enhance grading.

## EDUCATION

- 2012 **Ph.D., Computer Engineering, University of Virginia**
- 2010 **Master's degree, Computer Engineering, University of Virginia**  
Ph.D Dissertation Topic: *A Data and Contention Aware Approach to Dynamic Scheduling for Heterogeneous Processors*. I researched how to make dynamic scheduling decisions for heterogeneous computers, taking into account data transfer overhead, historical runtime data, and resource contention. Advisor: Kim Hazelwood.
  
- 2002 **Master's degree, Education (M.Ed.), Harvard University**  
Teaching and Curriculum Program, concentration in secondary school physics. Currently hold a Massachusetts Educator's License for teaching physics grades 5-12.
  
- 1994 **Bachelor of Science degree, Electrical and Computer Engineering (BSEE), Johns Hopkins University**

## WORK, TEACHING EXPERIENCE AND AWARDS

- Fall 2016- **Lecturer, Computer Science Department, Stanford University**  
Present Courses Taught:  
CS-106A (Programming Methodologies)  
CS-106B (Programming Abstractions) (enrollment: ~400 students)  
CS-106X (Programming Abstractions, Accelerated)  
CS-107 (Computer Organization & Systems)  
CS-107E (Computer Systems from the Ground Up)  
CS-110 (Principles of Computer Systems)  
CS-208E (Great Ideas in Computer Science)  
CS-298 (Seminar on Teaching Introductory Computer Science)  
Awards:  
Tau Beta Pi Teaching Honor Roll, 2017-18, 2018-19
- Summer 2019 **Software Engineering Contractor, Facebook**  
(full time) - Artificial Intelligence Infrastructure team  
present (part Primarily responsible for front- and backend work on internal tools for  
time) the AI Infra team
- Spring 2014- **Lecturer, Computer Science Department, Tufts University**  
Summer 2016 Courses Taught:  
Introduction to Computer Science (enrollment: ~300 students)  
Data Structures (enrollment: ~185 students)  
Advanced Computer Architecture  
Senior Capstone / Design Project (full year course)  
(planned, Spring 2016) Wearable Devices (software / hardware)  
  
Tufts Center for the Enhancement of Learning and Teaching (CELT) Fellow,  
2014.
- Spring/Summer **Adjunct Assistant Professor, University of Maryland, University College,**  
2013 **Djibouti, Africa**  
While deployed for the U.S. Navy Reserves. Courses taught: Physical Science,  
Algebra (three semesters).
- Fall 2011 **Lecturer, Computer Architecture, University of Virginia**  
Personally selected as a graduate student to teach a required third-year  
undergraduate course with an enrollment of 140 students.  
**Awards:** All-University Graduate Teaching Award in Math, Science  
and Engineering, 2011-2012  
Computer Science Outstanding Teaching Award, 2011-2012.

Summer 2011 **Teacher, UVA Summer Enrichment Program, University of Virginia**  
and I designed and taught two innovative computer programming courses to  
Winter 2011 primary and middle school students.  
- *Programming the Computers of the Future*  
In this class, we taught nine and ten year old students how to program for parallel computers, an advanced undergraduate topic. We designed a new web-based computer language geared towards teaching novices.  
- *Programming Fundamentals, A Multi-Language Approach*  
In this two-week class, I taught novice middle-school students how to program in four different languages (Python, Java, Scheme, and C), focusing on similarities across languages.

Summer 2010 **Intern, Advanced Micro Devices, Boxborough, MA**  
OpenCL development and research for a computer vision project under the direction of Norm Rubin. The primary goal of the project was to develop an OpenCL translation of the "Speeded Up Robust Features" algorithm to include real-time video stabilization and other feature recognition tasks.

2002-2004 **Teacher, Brookline High School, Brookline, MA**  
and - AP Physics Mechanics and Electricity & Magnetism  
2005-2008 - AP Computer Science (Java) and C#  
- Conceptual Physics Standard and Honors, 9th grade  
- Astronomy and Meteorology, 12th grade elective  
- Advisor for the school robotics team

2004-2015 **United States Naval Reserves, Commander**  
- Cryptologist and Information Warfare Officer  
- Office of Naval Research, Science and Technology Directorate  
Current Project: *Detection/Tracking of Submerged Hydrodynamic Wakes Using a Bioinspired Hybrid Fluid Motion Sensor Array.*  
- Commanding Officer, Naval Information Operations Command, HI-Tacoma, Tacoma Washington. December 2013-August 2015.  
- Information Operations Chief and Deputy Director for Effects, Combined Joint Task Force—Horn of Africa, Djibouti, Africa (active duty recall), October 2013 - December 2014  
- Commanding Officer, Naval Information Operations Command, Greensboro, NC, December 2011 – October 2012.  
- Commander Joint Task Force J39 (Information Operations) - November 2012 - October 2013.

2004-2005 **Teacher, Pacific Collegiate School, Santa Cruz, CA**  
- AP Physics Mechanics and Electricity & Magnetism  
- Conceptual Physics  
- Awards:  
Teacher of the Year, 2004-2005

Fall 2003 **Teaching Fellow, Harvard Graduate School of Education**  
- Literacy and Learning, instructor: Vicki Jacobs

## BOOK

C. Gregg. *Your First Year Teaching Computer Science*. August, 2018

## TEACHING FACILITATIONS

C. Gregg, L. Strange. **"Teaching Track Faculty in Computer Science"**, Birds of a Feather, 49th SIGCSE Technical Symposium on Computer Science Education. Minneapolis, MN, February 2019.

C. Gregg, M. Sherriff. **"Teaching Track Faculty in Computer Science"**, Birds of a Feather, 48th SIGCSE Technical Symposium on Computer Science Education. Baltimore, MD, February 2018.

C. Gregg, B. Hescott. **"How Do We Provide Effective Student Advising and Mentoring During Record Growth?"**, Birds of a Feather, 48th SIGCSE Technical Symposium on Computer Science Education. Baltimore, MD, February 2018.

C. Gregg, M. Sherriff, S. Lupoli. **"Teaching Track Faculty in Computer Science"**, Birds of a Feather, 47th SIGCSE Technical Symposium on Computer Science Education. Seattle, WA, March 2017.

C. Gregg, C. Lewis. **"How Do You Teach Debugging? Resources and Strategies for Better Student Debugging."**, Birds of a Feather, 46th SIGCSE Technical Symposium on Computer Science Education. Memphis, TN, March 2016

C. Gregg, C. Lewis. **“Working with Undergraduate Teaching Assistants: Best Practices and Lessons Learned”**, Birds of a Feather, 45th SIGCSE Technical Symposium on Computer Science Education. Kansas City, MO, March 2015.

## RESEARCH AND PUBLICATIONS

C. Piech, C. Gregg. **“BlueBook: A Computerized Replacement for Paper Tests in Computer Science,”** Proceedings of the 48th SIGCSE Technical Symposium on Computer Science Education. Baltimore, MD, February 2018.

C. Gregg, R. Duvall, K. Wasynczuk. **“A Modern Wearable Devices Course for Computer Science Undergraduates,”** Proceedings of the 47th SIGCSE Technical Symposium on Computer Science Education. Seattle, WA, March 2017.

C. Gregg, L. Tychonievich, K. Hazelwood, J. Cohoon. **“Parallel Programming in Elementary School,”** Proceedings of the 42nd SIGCSE Technical Symposium on Computer Science Education. Raleigh, NC, February 2012.

C. Gregg, M. Boyer, K. Hazelwood, K. Skadron. **“Dynamic Heterogeneous Scheduling Decisions Using Historical Runtime Data,”** Proceedings of the 2nd Workshop on Applications for Multi- and Many-Core Processors. San Jose, CA, June 2011.

P. Mistry, R. Ubal, D. Kaeli, N. Rubin, C. Gregg. **“Developing Portable Profiling and Performance Analysis Tools for Heterogeneous Applications.”** AMD Fusion Developer Summit 2011, Bellevue, WA, June, 2011.

C. Gregg and K. Hazelwood. **“Where Is the Data? Why You Cannot Debate CPU vs. GPU Performance Without the Answer,”** International Symposium on Performance Analysis of Systems and Software (ISPASS). Austin, TX. April 2011.

P. Mistry, C. Gregg, N. Rubin, D. Kaeli, K. Hazelwood, **“Analyzing Program Flow within a Many-Kernel OpenCL Application,”** Fourth Workshop on General Purpose Processing on Graphics Processing Units (GPGPU-4). Newport Beach, CA. March, 2011.

C. Gregg, J. Brantley, and K. Hazelwood. “**Contention-Aware Scheduling of Parallel Code for Heterogeneous Systems**,” 2nd USENIX Workshop on Hot Topics in Parallelism (HotPar’10). June 2010.

M. Guevara, C. Gregg, K. Hazelwood, and K. Skadron, “**Enabling Task Parallelism in the CUDA Scheduler**,” in Programming Models and Emerging Architectures Workshop (Parallel Architectures and Compilation Techniques Conference, 2009).

C. Gregg, “**Genetic Algorithms in Autonomous Embedded Systems**,” University of Virginia Technical Report CS- 2009-08.

M. Guevara, C. Gregg, “**Fault-tolerant, Real Time Reconfigurable Prefix Adder**,” University of Virginia Technical Report CS-2009-09.

## CONFERENCE COMMITTEE PARTICIPATION

Technical Committee Member, **IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS) 2016**, Uppsala, Sweden, April 17-19, 2016.

## REFERENCES

Available upon request.