

# Timothy K. Paine

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## Education

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### Columbia University - Columbia College/School of Engineering and Applied Sciences (SEAS) Combined Plan

- B.A. in Computer Science/Mathematics - Columbia College '14
- B.S. in Computer Engineering - SEAS '15
- Rigorous Schedule of Classes (Avg: 26 credits/semester)
- Cumulative GPA: **3.99 CS, 3.77 B.A., 3.75 B.S.**, Dean's List (both schools)
- Margarete E. Kennedy Estate Scholarship

### Sophia University (上智大学) in Tokyo, Japan

Summer 2011

### New Providence High School '10

- Salutatorian, 16 Consecutive Marking Periods (All) of High Honor Roll Status

## Experience

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New York, NY

- **IBM** (Software Group Intern) **Dublin, OH - Summer 2013**
  - Worked on IBM's Multi-Enterprise gateway project as part of the suite of B2B business oriented software
  - Experience included enterprise java programming, python, javascript, HTML/CSS, Agile development methodology
- **Architecture and Design Lab** (research with Professor Martha Kim) **Summer 2012 - Present**
  - Developing a domain-specific database processing accelerator by creating a collection of heterogeneous ASIC tiles for fast and energy efficient processing of database queries (SQL)
  - Current research is focused on homogenous designs, FPGA implementations, and NoC/pipeline topology
- **Facebook OpenAcademy Program**
  - Developed two-factor authentication for OpenStack's Keystone service
  - Integrated this with the Horizon dashboard module
- **Columbia University Teaching Assistant** - Computer Science Department **Fall 2012 - Present**
  - Introduction to Programming for Scientists and Engineers **Spring 2014**
  - Advanced Programming **Spring 2013, Fall 2013**
  - Fundamentals of Computer Systems **Fall 2013**
  - Introduction to Combinatorics and Graph Theory **Fall 2012**
- **Columbia University Tutor** **Fall 2012 - Present**
  - Ordinary Differential Equations
  - Fundamentals of Computer Systems

## Publications

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- [1] L.Wu, A. Lottarini, T. Paine, M. Kim, K.Ross "Q100: The Architecture and Design of a Database Processing Unit." to appear in ASPLOS 2014: Nineteenth International Conference on Architecture Support for Programming Languages and Operating Systems

## Activities

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New York, NY

- **Beta Theta Pi Fraternity** **Fall 2011 - Present**
  - Helped expand the chapter from 20 members to more than 45
  - Organized various philanthropic and educational events, including charity concerts, volunteer work in Harlem and the Bronx, and guest lectures by Columbia faculty, such as world renowned Professors Donald Keene and William Theodore de Bary.
  - Vice President, Treasurer, Recruitment Chair (2 Terms), InterFraternity Council Representative, Webmaster
  - House manager of our 114<sup>th</sup> Street Brownstone
  - Attended the Keystone Leadership Conference
- **Columbia Judo Club** **Spring 2013 - Present**
  - Vice President
- **Knickerbocker Motorsports**, Formula Society of Automotive Engineers (FSAE) **Spring 2011 - Present**
  - Secure business sponsorships, develop and wire the car's electronics
- **Columbia Japan Society** **Fall 2013 - Present**
  - Webmaster, Organizational Committee Member

Additionally, I am a current or past member of the following clubs/societies/groups: Order of Omega Honor Society, IEEE, Application Development Initiative (ADI), Columbia International Relations Council, Association for Computing Machinery (ACM), Columbia Undergraduate Math Society, Brazilian Jazz Ensemble (Guitar), Afro-Cuban Jazz Ensemble (Guitar), Afro-Columbia Jazz Ensemble (Guitar), Columbia Ski Team

## Skills/ Relevant Courses

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### Programming:

**Proficient** -- Java, C, C++, Python, Verilog

**In Progress** -- Matlab, Javascript, VHDL, R, X10 (IBM), OCaml

**Web Development** -- HTML/CSS, Flask, Django, OpenStack

**Environment/tools** -- \*nix, Os X, Windows, Microsoft Office, Latex, Git, Svn, Hg, Github/Bitbucket, Vagrant, Virtualbox, Agile

**Database** -- Oracle, IBM DB2, Apache Derby, Postgres, MongoDB,

**Skill set:** Experience in Algorithm Analysis, Networks, Databases, Complexity Theory, and Computer Architecture

**Relevant Courses:** ODE, PDE, Algorithms, Networks, Embedded Systems, Operating Systems, Computer Architecture, Stochastic Models, Statistical Machine Learning, Principles of Economics, Business Japanese

**Language Skills:** Japanese (Fluent), Spanish

## **Pre-college Honors and Competitions**

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- **National Merit Finalist and Scholarship Winner**
- National Honor Society, Spanish National Honor Society, Japanese National Honor Society
- Edward J. Bloustein Distinguished Scholar
- AP Scholar
- All State Jazz Ensembles (Guitar)
- **YMCA Northeast Model United Nations**
  - A yearly weekend long conference held in Hershey Park, PA, and attended by around 1600 high schools students from several mid-atlantic states.

### **Positions Held:**

- Secretary General (Elected) *Fall 2009 - Spring 2010*
- Vice Chair - European Union (Elected) *Fall 2008 - Spring 2009*
- Vice Chair - General Assembly (Elected)
- Conference on National Affairs (CONA) Selectee *Summer 2008, Summer 2009*
- Youth Governor's Conference Attendee *Summer 2009*
- **Junior Engineering Technical Society (JETS)** Best in State (NJ) *2010*
- Panasonic Creative Design Challenge - Finalist *2009, 2010*
- SAT 740 W 800 M 740 CR, 800 Math II

## **References**

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### **Martha Kim, Ph.D.**

Assistant Professor - Department of Computer Science - Columbia University  
(212) 939-7094  
[martha@cs.columbia.edu](mailto:martha@cs.columbia.edu)

### **Dave Ogle, Ph.D.**

IBM Distinguished Engineer - Columbus, OH lab  
[daveogle@us.ibm.com](mailto:daveogle@us.ibm.com)