

Brian Anthony Smith

<Address and Phone # redacted in Web CV>
brian@cs.columbia.edu • www.cs.columbia.edu/~brian/

Research Interests

Human-computer interaction (HCI), game design, assistive technologies, data mining for HCI

Education

Columbia University, Graduate School of Arts and Sciences, New York, NY

Ph.D. in Computer Science, Oct. 2018

Dissertation: *Unmediated Interaction: Communicating with Computers and Embedded Devices as If They Are Not There*

Advisors: Prof. Shree K. Nayar and Prof. Steven K. Feiner

M.Phil., Computer Science, Feb. 2015 GPA: 4.00

Candidacy Exam: *Human Computation and Crowd-Powered Vision*

Columbia University, The Fu Foundation School of Engineering and Applied Science, New York, NY

M.S., Computer Science, Feb. 2011 GPA: 4.03

B.S., *summa cum laude*, May 2009 Major: Computer Science Minor: Economics GPA: 4.10

Relevant Coursework: Foundations of Graphical Models, Adv. Software Engineering, Machine Learning, Game Design & Production, Operating Systems, Computer Vision, 3D User Interfaces & Augmented Reality

Employment

2019+ **Columbia University**, New York, NY

Assistant Professor of Computer Science, starting July 2019

- Will establish an HCI research lab and teach courses on HCI and game design.

2018–2019 **Snap, Inc.**, Santa Monica, CA

Research Scientist

- Develop future projects in human-computer interaction, games, and augmented reality, working with both Snap Research and Snap Lab (the team behind Spectacles).

2008–Present **van Biema Value Partners, LLC**, New York, NY

Webmaster

- Create, update, and maintain a Web site for the value-only fund of funds.

2009–2018 **Columbia University**, New York, NY

Graduate Research Assistant, Computer Vision Laboratory & Computer Graphics and User Interfaces Laboratory

- Performed research in human-computer interaction, assistive technologies, and data mining.

2014 **Google Research**, Mountain View, CA

Software Engineering Intern, Ph.D., Mobile Interaction Research Group (MIRG)

- Computationally optimized touchscreen keyboards for gesture typing. Published paper at CHI 2015.

2012 **Google Inc.**, New York, NY

Software Engineering Intern, Ph.D., Local Identity Team

- Designed a new method for aggregating business listings in Google Maps and Google+ Local. An estimated 2 billion listings were improved in testing.

2009–2012 **Kimera, LLC** (non-profit Columbia-based startup), New York, NY

Designer, Producer, and Developer

- Co-developed the Google-funded Bigshot camera and educational Web site (bigshotcamera.org).
- Designed and produced Bigshot Connect, a now-defunct photo-sharing Web site for kids.
- Co-instructed educational workshops with kids in New York, India, Vietnam, and Japan.

2010 **Funtank, LLC**, New York, NY

Game Design and Development Intern

- Helped design and prototype a Facebook social game based on fellowship and travel.

- 2007 **Banc of America Securities** (now **Bank of America Merrill Lynch**), New York, NY
Sophomore Summer Analyst (Rotational Program)
- Created client-side analytics tools in the Global Structured Products: Technology Group.
 - Performed market research and company analysis in the Financial Institutions Group.
- 2007 **Red Monsoon**, New York, NY
Web Development & Graphic Design Intern
- Designed and created a Web site for the non-profit performing arts collaborative.

Awards & Honors

- 2015–2017 **“From Data to Solutions” Integrative Graduate Education & Research Traineeship (IGERT)**, NSF
 A 2-year interdisciplinary data science training program. Covers full tuition, fees, and travel expenses.
- 2013, 2015 **Computer Science Service Award (×2)**, Dept. of Computer Science, Columbia University
 Awarded to the Ph.D. students whose service contributions to the department are in the top 10%.
- 2012 **Extraordinary Teaching Assistant Award**, Columbia Engineering
 Awarded to the 19 TAs throughout the school with the highest Fall 2011 student evaluations (\$500).
- 2011–2014 **National Defense Science and Engineering Graduate (NDSEG) Fellowship**, U.S. Dept. of Defense
 \$31,000/year + tuition + fees for 3 years. There were 200 awardees from over 2,900 applications.
- 2009–2010 **Center for Technology, Innovation, & Community Engagement Fellowship**, Columbia Engineering
 Covers half-tuition for a year for 10 PhD students each year. I was the first and only MS student awardee.
- 2009 **Computer Science Scholarship Award (Departmental Award)**, Columbia Engineering
 Awarded to the top computer science graduate each year.
- 2009 **Costantino Colombo Outstanding Leadership Service Award**, Columbia Engineering
 Awarded to a graduating student for enhancing undergraduate student life. I was the inaugural awardee.
- 2007–2009 **Benjamin A. Tarver, Jr. Memorial Scholar**, Columbia Engineering
 An endowed grant that covered full undergraduate tuition and fees for 2 years.
- 2005–2009 **C. Prescott Davis Scholar**, Columbia Engineering
 A 4-year co-curricular program awarded to the top 2% of applicants to Columbia Engineering.

Peer-Reviewed Conference Publications

- [C4] **Smith, B. A.** & Nayar, S. K. (2018). The RAD: Making Racing Games Equivalently Accessible to People Who Are Blind. *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI 2018)*. Paper 516, pp. 1–12. [Acceptance Rate: 25.7%]
 Paper: <https://doi.org/10.1145/3173574.3174090> Talk: <https://youtu.be/pwI7IGywICA>
- [C3] **Smith, B. A.** & Nayar, S. K. (2016). Mining Controller Inputs to Understand Gameplay. *Proceedings of the 29th Annual ACM Symposium on User Interface Software and Technology (UIST 2016)*. pp. 157–168. [Acceptance Rate: 20.6%]
 Paper: <https://doi.org/10.1145/2984511.2984543> Talk: https://youtu.be/_a03zlXoTYU
- [C2] **Smith, B. A.**, Bi, X., & Zhai, S. (2015). Optimizing Touchscreen Keyboards for Gesture Typing. *Proceedings of the 2015 CHI Conference on Human Factors in Computing Systems (CHI 2015)*. pp. 3365–3374. [Acceptance Rate: 22.9%]
 Paper: <https://doi.org/10.1145/2702123.2702357> Talk: <https://youtu.be/0PHjN4GjSi8>
- [C1] **Smith, B. A.**, Yin, Q., Feiner, S. K., & Nayar, S. K. (2013). Gaze Locking: Passive Eye Contact Detection for Human–Object Interaction. *Proceedings of the 26th Annual ACM Symposium on User Interface Software and Technology (UIST 2013)*. pp. 271–280. [Acceptance Rate: 19.6%]
 Paper: <https://doi.org/10.1145/2501988.2501994>

Peer-Reviewed Workshops

- [W1] Bi, X., **Smith, B. A.**, & Zhai, S. (2015). Keyboard Layout Optimization. *Proceedings of the CHI 2015 Workshop on Principles, Techniques, and Perspectives on Optimization and HCI*.

Book Chapters

- [BC1] Bi, X., **Smith, B. A.**, Ouyang, T., & Zhai, S.. (2018). Soft keyboard performance optimization. In A. Oulasvirta, P. O. Kristensson, X. Bi, & A. Howes (Eds.), *Computational interaction* (pp. 121–152). Oxford: Oxford University Press. ISBN: 9780198799610

Leadership & Professional Service

- 2018–2019 **Program Committee Memberships for Academic Conferences**
- ACM ETRA 2019
- 2014–Present **Peer Reviewer for Academic Conferences & Journals**
- Conferences:*
- ACM UIST 2014, 2015, 2016
 - ★ *Special Recognition for Exceptional Reviewing* ×2 (UIST 2015, UIST 2016) ★
 - ACM CHI 2015, 2016, 2017, 2018
 - ★ *Special Recognition for Exceptional Reviewing (CHI 2016)* ★
 - ACM VRST 2017
- Journals:*
- PACM Interact. Mob. Wearable Ubiquitous Technol. (2017)
 - Elsevier Int. J. Hum. Comp. Stud. (2016)
- 2012 **Columbia University Department of Computer Science**, New York, NY
- MS Admissions Committee Volunteer*
- Reviewed ~150 applications and conducted phone interviews for the department’s MS Program.
- 2006–2009 **Columbia University Undergraduate Recruitment Committee**, New York, NY
- SEAS and Scholars Chair, Advisory Board (2007–2009)*
- Helped recruit, select, train, and manage Undergraduate Recruitment Committee volunteers.
 - ★ *Most Likely to Convince Someone to Come to Columbia Award* ★
- Senior Interviewer (2007–2009)*
- Conducted regional interviews of high school applicants to Columbia from underserved areas.
- 2005–2008 **Columbia University Scholar’s Program (CUSP) Alliance**, New York, NY
- Vice President of Operations (2006–2008)*
- Developed policies and structures of governance for the 24 officers and 7 committees.

Mentoring & Advising

- 2011–Present **Research Project Students Advising**, Columbia University
- Julie Chien (M.S.; Spring 2017)
 - Ray Tsai (M.S.; Spring 2017)
 - Jake Bullock (B.S.; Spring 2016)
 - Akash Nayar (Secondary School; Summer 2015)
 - Olivia Winn (B.S., Ph.D.; Spring 2014 – Fall 2014)
 - Robert Colgan (Ph.D.; Fall 2014)
 - Sophia Erbo Lee (M.S.; Fall 2011 – Spring 2012)
 - Vu Xuan Linh (M.S.; Spring 2011)
 - Tristan Pavlik (Secondary School; Fall 2010)
- 2011–Present **Egleston Scholars Enhanced Advising Committee**, Center for Student Advising, Columbia Univ.
- Advised current students, recruited prospective students, and helped shape pedagogy for this comprehensive advising program for top 1% of Columbia Engineering undergraduate admits.
- Students Advised (in alphabetical order):*
- Eshan Agarwal, Arvind Chava, Jessica Cheng, Campbell Donnelly, Haris Durrani, Drew Feldman, Fei-Tzin Lee, Kai-Zhan Lee, Sang Jun Park, Lucas Schuermann, Steven Shao, SonYon Song, Kui Tang (Next Stop: Ph.D. student at Columbia), Morgan Thompson, James Xu, Kevin Zeng, Alek Zieba

2007–Present

Career and Professional Advising

- Su Ji Park (B.S.; Fall 2017)
- Ian Huang (B.S.; Summer–Fall 2017; Next Stop: Intel internship)
- Daniel Sims (Research Staff; Spring–Summer 2017)
- Sam Cohen (B.S.; Spring 2016–Fall 2017)
- Chun-Yu Tsai (Ph.D.; Fall 2015; Next Stop: Facebook Research)
- Jiongxin Liu (PhD; Spring 2015; Next Stop: Google)
- Sean Pagaduan (M.F.A.; Fall 2014 & Fall 2015; Next Stop: Union Theological Seminary)
- Fiamma van Biema (B.S.; Fall 2013; Next Stop: Teachers College, Columbia U. M.A. graduate)
- Hua Papoj Thamjaroenporn (B.S.; Fall 2011; Next Stop: Ph.D. student at Columbia)
- Babawande Afolabi (B.S.; Fall 2007; Next Stops: Goldman Sachs internship, Stanford M.B.A. graduate)
- Kwesi Thomas (B.S.; Fall 2007; Next Stop: Deloitte Consulting)

Teaching Experience

2009–2013

Teaching Assistant, Columbia University

Graduate Level Courses:

- COMS W6732: Computational Imaging (Fall 2013)
Instructor: Prof. Shree K. Nayar
- COMS W4731: Computer Vision (Fall 2011)
Instructor: Prof. Shree K. Nayar
★ *Extraordinary Teaching Assistant Award* ★
- COMS E6998: Advanced Game Development (Spring 2011)
Instructor: Prof. Bernard Yee
- COMS W4995: Game Design and Production (Fall 2010)
Instructor: Prof. Bernard Yee
- COMS E6998: Advanced Game Development (Spring 2010)
Instructor: Prof. Bernard Yee

Undergraduate Level Courses:

- ENGI E1102: Design Fundamentals using Advanced Computer Technologies (Spring 2010)
Instructor: Prof. Jack McGourty
- ENGI E1102: Design Fundamentals using Advanced Computer Technologies (Fall 2009)
Instructor: Prof. Jack McGourty

2010–2012

Co-Instructor, Kimera, Inc. (non-profit Columbia-based startup)

- Co-instructed Bigshot Camera STEM workshops with kids in New York, India, Vietnam, and Japan.

2010

Co-Instructor, Center for Technology, Innovation, and Community Engagement (CTICE) STEM Club

- A hands-on afterschool program at IS 195 targeted for fifth grade students struggling in science.
- Designed curriculum and hands-on projects. Co-instructed with Guru Krishnan.

2006–2015

Private Tutor, New York, NY

College Level Subjects:

- COMS W4731: Computer Vision (Columbia University; Fall 2017)
- MATH 101: Concepts of Mathematics [Logic and set theory] (Nassau Commun. Col.; Summer 2017)
- MATH 125: Precalculus (Hunter College, City University of New York; Fall 2015)
- COMS W1004: Introduction to Computer Science and Programming in Java (Columbia; Spring 2014)
- ECON W1105: Principles of Economics (Columbia University; Fall 2013)
- SCNC C1000: Frontiers of Science (Columbia University; Fall 2013)
- URBS UN3200: Spatial Analysis: GIS Methods and Case Studies (Barnard College; Spring 2013)
- URBS V3562: The City in Beta: Public Participation in the Design Process (Barnard College; Fall 2012)
- MATH VI201: Calculus III (Columbia University; Fall 2012)
- SCPP BC 3335: Environmental Leadership, Ethics, and Action (Barnard College; Fall 2011)
- EESC BC1002: Environmental Science II (Barnard College; Spring 2011)
- EESC BC3014: Field Methods in Environmental Science (Barnard College; Fall 2010)
- MATH VI101: Calculus I (Columbia University; Fall 2009)

- GRE Math Prep

High School Level Subjects:

- Algebra I, Geometry, Algebra II, Pre-Calculus, Calculus I, Physics I, Chemistry I, SAT Prep
- Tutored for both English- and French-speaking high schools

Invited Talks and Panel Appearances

- 2018 (x6) **“Analyzing Human Behavior to Make HCI More Useful”**
- Yale University, New Haven, CT (Apr. 2018)
 - Cornell University, Ithaca, NY (Apr. 2018)
 - Fordham University, New York, NY (Mar. 2018)
 - Johns Hopkins University, Baltimore, MD (Mar. 2018)
 - Princeton University, Princeton, NJ (Mar. 2018)
 - Columbia University, New York, NY (Feb. 2018)
- Feb. 2018 **“Solving ‘Last Mile’ Computing Problems in HCI”**
Snap, Inc., Venice, CA
- Jun. 2017 **“The Bigshot Camera: A Case Study in Making Technology Educational”**
Engineering for Humanity strategic discussion forum of faculty. Columbia University, New York, NY
- Sep. 2014 **“Game Design: An Introduction”**
d:Tech NYC seminar at Cornell Tech, New York, NY.
- Aug. 2010 **“The Potential and Pitfalls of Tutoring/Mentoring and Service-Learning”**
New York Metro Area Partnership for Service Learning (NYMAPS) panel, New York, NY.
- Jul. 2010 **“Composting”**
Summer Youth Employment Program (SYEP) lecture. NYC Dept. Parks and Recreation, New York, NY.
- Jul. 2010 **“Alternative Fuel Vehicles”**
Summer Youth Employment Program (SYEP) lecture. NYC Dept. Parks and Recreation, New York, NY.
- Jul. 2010 **“Static Forces”**
WINgineering (Women in Engineering) summit. NYC Dept. Parks and Recreation, New York, NY.
- Jul. 2010 **“Youth and Cybersecurity”**
Moderated focus group in partnership with NGO. East West Institute, New York, NY.

Skills

Proficient with Java, Python, Swift, C, C++, Unity, ActionScript 3, Flash, Photoshop, Dreamweaver, and MS Office programs. Familiar with MATLAB, SQL, PHP, OpenGL, Lisp, AWK, VBA, and ArcGIS.

References

Shree K. Nayar

Professor, Computer Science
Columbia University
nayar@cs.columbia.edu
<Phone # redacted in Web CV>
520 West 120 Street
450 Mudd Hall, Mail Code 0401
New York, NY 10027

Steven K. Feiner

Professor, Computer Science
Columbia University
feiner@cs.columbia.edu
<Phone # redacted in Web CV>
520 West 120 Street
450 Mudd Hall, Mail Code 0401
New York, NY 10027

Xiaojun Bi

Assistant Professor, Computer Science
Stony Brook University
xiaojun@cs.stonybrook.edu
<Phone # redacted in Web CV>
161 New Computer Science (NCS)
Stony Brook University
Stony Brook, NY 11794-2424

Shumin Zhai

Senior Research Scientist
Google, Inc.
zhai@google.com
<Phone # redacted in Web CV>