Brian Anthony Smith

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Research Goal

My research aims to enable a tighter collaboration between people and computers so that our AI advancements are not just giving computers new abilities but giving people new abilities as well. I hope to make it possible for people to sense what computers can sense and understand what computers can understand in a manner as rich and intuitive as using their own senses. My work is interdisciplinary and incorporates AI, sensing, vision, design, accessibility, and games.

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
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

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

Employment

2019–Present **Columbia University**, New York, NY
Assistant Professor of Computer Science
Director, Computer-Enabled Abilities Laboratory (CEAL)
Affiliate Member, Smart Cities Center + Data, Media, & Society Center, Data Science Institute

2018–2022 **Snap Research (Snap, Inc.)**, New York, NY & Santa Monica, CA
Research Scientist, Human–Computer Interaction (HCI) Group
- Led multi-year research programs understanding how smartglasses and AR can enrich communication between friends. Published six papers at top-tier HCI venues, filed over 20 patents, and built a partnership between Snap Research and Snap's hardware team.

2008–2020 **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 human–computer interaction, assistive technologies, and data mining research.

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

2023 ***Janette and Armen Avanessians Diversity Award**, Columbia Engineering*
Awarded annually to a professor whose actions encourage people from diverse backgrounds to become part of the academic community of engineering education.

2022 ***Google Award for Inclusion Research (AIR)**, Google, Inc.*
Supports computing research that addresses historically marginalized groups' needs. Joint award with Prof. Shiri Azenkot, Cornell Tech.

2021 ***Distinguished Faculty Teaching Award**, Columbia Engineering Alumni Association (CEAA)*
Awarded annually to two faculty. I am the most junior awardee in the school's history.

2019 ***Kavli Fellow**, National Academy of Sciences*
Awarded to distinguished young scientists in the US and abroad.

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.

Conference Publications (Fully Refereed)

[C10] Nair, V., Zhu, H., and **Smith, B. A.** (2023). ImageAssist: Tools for Enhancing Touchscreen-Based Image Exploration Systems for Blind and Low Vision Users. *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*. pp. 1–17. [Acceptance Rate: 28.4%]
Paper: https://doi.org/10.1145/3544548.3581302 Talk: https://youtu.be/lBZTTrO7HQs

[C9] Mack, K., Hsu, R. C. L., Monroy-Hernández, A., **Smith, B. A.**, and Liu, F. (2023). Towards Inclusive Avatars: Disability Representation in Avatar Platforms. To appear at *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*. pp. 1–13. [Acceptance Rate: 28.4%]
Paper: https://doi.org/10.1145/3544548.3581481 Talk: https://youtu.be/UmWe4Q0qreI

[C8] Reig, S., Cruz, E. P., Powers, M., He, J., Chong, T., Tham, Y. J., Kratz, S., Robinson, A., **Smith, B. A.**, Vaish, R., and Monroy-Hernández, A. (2023). Supporting Piggybacked Co-Located Leisure Activities via Augmented Reality. To appear at *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*. pp. 1–15. [Acceptance Rate: 28.4%]
Paper: https://doi.org/10.1145/3544548.3580833 Talk: https://youtu.be/4Lbk_fysRjM

[C7] Nair, V., Ma, B., Gonzalez, R., He, Y., Lin, K., Hayes, M., Huddleston, H., Donnelly, M., and **Smith, B. A.** (2022). Uncovering Visually Impaired Gamers' Preferences for Spatial Awareness Tools Within Video Games. *Proc. ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2022)*. pp. 1–16. [Acceptance Rate: 26.5%]
Paper: https://doi.org/10.1145/3517428.3544802

[C6] Surale, H., **Smith, B. A.**†, and Vaish, R.†. (2022). ARcall: Exploring Augmented Reality-Based Real-Time Communication. *Proc. Augmented Humans International Conference (AHs 2022)*. pp. 1–10.
Paper: https://doi.org/10.1145/3519391.3519398
† Co-Principal Investigators

[C5] Nair, V., Karp, J., Silverman, S., Kalra, M., Lehv, H., Jamil, F., and **Smith, B. A.** (2021). NavStick: Making Video-Games Blind-Accessible via the Ability to Look Around. *Proceedings of the 34th Annual ACM Symposium on User Interface Software and Technology (UIST 2021)*. 14 pages. [Acceptance Rate: 21%]
Paper: https://doi.org/10.1145/3472749.3474768 Talk: https://youtu.be/oAu_Q_2YU_E

[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/_a03zIXoTYU

[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

Journal Articles

[J5] Leong, J., Teng, Y., Liu, X., Jun, H., Kratz, S., Tham, Y. J., Monroy-Hernández, A., **Smith, B. A.** †, and Vaish, R.†. (2023). Social Wormholes: Exploring Preferences and Opportunities for Distributed and Physically Grounded Social Connections. To appear at *Proc. ACM Hum.-Comput. Interact. 7*, CSCW2 (Nov 2023). 26 pages.
Paper Preprint: https://arxiv.org/abs/2305.09252
† Co-Principal Investigators

[J4] Lee, K., Li, H., Wellyanto, M. R., Tham, Y. J., Monroy-Hernández, A., Liu, F., **Smith, B. A.** †, and Vaish, R.†. (2023). Exploring Immersive Interpersonal Communication via AR. To appear at *Proc. ACM Hum.-Comput. Interact. 7*, CSCW1 (April 2023). 25 pages.
Paper: https://doi.org/10.1145/3579483
† Co-Principal Investigators

[J3] Jain, G., Teng, Y., Cho, D. H., Xing, Y., Aziz, M., and **Smith, B. A.** (2023). "I Want to Figure Things Out": Supporting Exploration in Navigation for People with Visual Impairments. To appear at *Proc. ACM Hum.-Comput. Interact. 7*, CSCW1 (April 2023). 28 pages.
Paper: https://doi.org/10.1145/3579496

[J2] Liu, S.-Y., **Smith, B. A.**, Vaish, R.†, and Monroy-Hernández, A.† (2022). Understanding the Role of Context in Making Co-Located Interactions Enjoyable. *Proc. ACM Hum.-Comput. Interact. 6*, CSCW1, Article 131 (April 2022). 26 pages.
Paper: https://doi.org/10.1145/3512978
† Co-Principal Investigators

[J1] Nicholas, M., **Smith, B. A.**[†], and Vaish, R.[†]. (2022). Friendscope: Exploring In-the-Moment Experience Sharing on Camera Glasses via a Shared Camera. *Proc. ACM Hum.-Comput. Interact. 6*, CSCW1, Article 56 (April 2022). 25 pages.
Paper: https://doi.org/10.1145/3512903
[†] Co-Principal Investigators

Misc. Publications (Demos, Workshops, Extended Abstracts, and Technical Reports)

[EA2] Jain, G., Hindi, B., Courtien, C., Wyrick, C., Xu, X. Y. T., Malcolm, M. C., & **Smith, B. A.** (2023). Towards Accessible Sports Broadcasts for Blind and Low-Vision Viewers. *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '22)*. 7 pages.
Paper: https://doi.org/10.1145/3544549.3585610 Talk: https://youtu.be/kYDdWOqo76o

[EA1] Liu, Y., Ritchie, J., Kratz, S., Sra, M., **Smith, B. A.**, Monroy-Hernández, A., & Vaish, R. (2021). Memento Player: Shared Multi-Perspective Playback of Volumetrically-Captured Moments in Augmented Reality. *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '22)*. 9 pages.
Paper: https://doi.org/10.1145/3544549.3585588 Talk: https://youtu.be/AIoAWqEy0Po

[TR1] **Smith, B. A.**[*] and Vaish, R.[*] (2022). The Future of Moments in AR: Takeaways from the 2021 Snap Creative Challenge. *Technical Report, Snap Creative Challenge*.
Article: https://www.snapcreativechallenge.com/takeaways2021/
[*] Equal contribution

[D2] Nair, V., Ma, B., Huddleston, H., Lin, K., Hayes, M., Donnelly, M., Gonzalez, R., He, Y., & **Smith, B. A.** (2021). Towards a Generalized Acoustic Minimap for Visually-Impaired Gamers. *Proceedings of the Adjunct Publication of the 34th Annual ACM Symposium on User Interface Software and Technology (UIST '21 Adjunct)*. 3 pages.

[D1] Nair, V. & **Smith, B. A.** (2020). Toward Self-Directed Navigation for People with Visual Impairments. *Proceedings of the Adjunct Publication of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20 Adjunct)*. pp. 139–141.

[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

Patents

[P2] US 10,897,564: SHARED CONTROL OF CAMERA DEVICE BY MULTIPLE DEVICES (2021).

[P1] US 9,96,743: METHODS, SYSTEMS, AND MEDIA FOR DETECTING GAZE LOCKING (2018).

Leadership & Professional Service

2019–Present **Steering Committee, Summer School on Computational Interaction**

2023 **Program Committee, ACM CHI 2023**

2022 **Program Committee, ACM CHI 2022**

2020–2022 **Program Committee, Snap AR Creative Challenge**
- An annual challenge funded by Snap Inc. We convene and mentor university teams from around the world to help solve the biggest challenges around AR.

2021 **Program Committee, ACM UIST 2021**

2019–2020 **Reviewer, NSF Graduate Research Fellowship Program (GRFP)**

2019 **Co-Organizer, 5th Summer School on Computational Interaction**
- Co-organized weeklong event w/ Prof. Xiaojun Bi of Stony Brook U. and hosted it at Columbia.
- Featured 8 faculty and 29 students (many international), whose median review score was 5/5.

2019 **Program Committee, ACM ETRA 2019**

2019 **Reviewer, National Defense Science and Engineering Graduate (NDSEG) Fellowship Program**

2014–Present **Peer Reviewer for Academic Conferences & Journals**

Conferences:
- ACM UIST 2014, 2015, 2016, 2019, 2020, 2021
  ★ ***Special Recognition for Exceptional Reviewing ×2 (UIST 2015, UIST 2016)*** ★
- ACM CHI 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022
  ★ ***Special Recognition for Exceptional Reviewing ×2 (CHI 2016, CHI 2022)*** ★
- ACM VRST 2017

Journals:
- PACM Interact. Mob. Wearable Ubiquitous Technol. (2017, 2019)
- 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

2019–Present **Ph.D. Students**, Columbia University
- Vishnu Nair (Fall 2019–present)
- Gaurav Jain (Fall 2020–present)
- Ricardo Gonzales [visiting] (Cornell Tech; Summer 2021)
- Vivian Liu [co-advising] (Fall 2020–present)

2019–Present **Ph.D. Dissertation Committee memberships**, Columbia University
- Jen Shuo Liu, *Eye Tracking for Collaborative VR and AR* (Date TBD)
  - Advisor: Steven K. Feiner
- Katy Gero, *AI and the Writer: How Language Models Support Creative Writers* (Nov 2022)
  - Advisor: Lydia B. Chilton
- Savvas Petridis, *Designing Exploratory Search Systems that Stimulate Memory and Reduce Cognitive Load* (Oct 2022)
  - Advisor: Lydia B. Chilton
- Daniel Li, *Enabling Structured Navigation of Longform Spoken Dialog with Automatic Summarization* (Sept 2022)
  - Advisor: Lydia B. Chilton
- Chang Xiao, *Extending the Boundary of Mobile Interactions* (May 2021)
  - Advisor: Changxi Zheng
- Carmine Elvezio, *XR Development with the Relay and Responder Pattern* (May 2021)

- Advisor: Steven K. Feiner

2019–Present **M.S. Thesis Advisees**, Columbia University

- Basel Hindi, *Computer Vision Techniques for Blind and Low Vision Accessibility* (Date TBD)
- Yuanyang (YY) Teng, *Understanding Spatial Awareness and Design Implications for Assistive and Social Technologies Situated in Space* (Feb 2023)
- Arnavi Chheda, *Examining Techniques for Equivalent Access of Web User Interfaces for Blind and Low Vision People* (Dec 2022)
- Jay Karp, *Understanding Motivations Behind Co-Located Stranger Interactions* (May 2022)

2021–Present **M.S. Thesis Committee memberships**, Columbia University

- Taeahn (Terry) Kwon, *Interfaces for Personalized Language Learning with Generative Language Models* (Dec 2022)
  - Advisor: Lydia Chilton
- Hui (Abby) Lu, *Private Multiparty Perception for Navigation* (August 2022)
  - Advisor: Carl Vondrick
- Ruoyu Xue, *Rope Structure Construction Based on Combining Robot Perception and Interaction* (May 2022)
  - Advisor: Shuran Song

2011–Present **M.S. Students**, Columbia University

- Aditi Patil (Fall 2022 – present)
- Maximillian Tseng (Spring 2023 – present)
- Peize Song (Spring 2023 – present)
- Uttam Gurram (Spring 2023 – present)
- Lindsey Weiskopf (Fall 2022)
- Arjun Nichani (Fall 2022)
- Maryam Aziz (Fall 2022)
- Jacqueline Gibson (Summer 2022)
- Logan Wang (Spring 2022)
- David Cho (Spring 2021 – Summer 2021)
- Yunhao Xing (Spring 2021 – Summer 2021)
- Hollis Lehv (Fall 2020 – Spring 2021)
- Samuel Silverman (Fall 2019 – Summer 2020)
- Aditi Hudli (Fall 2019)
- Julie Chien (Spring 2017)
- Ray Tsai (Spring 2017)
- Sophia Erbo Lee (Fall 2011 – Spring 2012)
- Vu Xuan Linh (Spring 2011)

2011–Present **Undergraduate Students**, including visiting students

- Hazel Zhu (Spring 2022 – present)
- David Rios (Summer 2022 – present)
- Alex Rupp-Coppi (Spring 2023 – present)
- Kynnedy Simone Smith (Spring 2023 – present)
- Michael Malcolm (SUNY Albany; Summer 2021 – Summer 2022)
- Avery Reyna (U. Central Florida; Summer 2022)
- Cecilia Zhang (Bryn Mawr College; Summer 2022)
- Connor Courtien (CUNY Hunter College; Summer 2022)
- Conrad Wyrick (U. Florida; Summer 2022)
- Jazmyn Jenkins (Tuskegee U.; Summer 2022)
- Xinyi Xu (Pomona College; Summer 2022)
- Carl Dobrović (Spring 2020 – Spring 2022)
- Brian Ma (Fall 2020 – Fall 2021)
- Maryam Aziz (U. Conn; Summer 2021)
- Matthew Donnelly (Bowdoin; Summer 2021)
- Mason Hayes (RIT; Summer 2021)
- Yicheng He (Spring–Summer 2021)

- Hannah Huddleston (Stanford U.; Summer 2021)
- Karen Lin (Summer 2021)
- Michael Malcolm (U Albany; Summer 2021)
- Sebastian Mercado (Fordham; Summer 2021)
- Emily Li (Spring 2021)
- Monica Lin (Fall 2020 – Spring 2021)
- Jessica Peng (Spring 2021)
- Ivy Cao (Fall 2019 – Spring 2020)
- Seok Jun Jeon (Fall 2019 – Spring 2020)
- Annie Kim (Fall 2019 – Spring 2020)
- Thé Ngo (Fall 2019 – Spring 2020)
- António Câmara (Spring 2020)
- Yiwen Gao (Spring 2020)
- Sarah Leventhal (Spring 2020)
- Benjamin Most (Spring 2020)
- Carlos Rosas (Spring 2020)
- Kenny Yuan (Spring 2020)
- Jake Bullock (Spring 2016)

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

2019–Present **Instructor**, Columbia University

Graduate Level Courses:

- COMS E6178: Human–Computer Interaction (Spring 2023)
  32 students Instructor eval.: Mean: 5.00 / 5 (SD: 0.00)
- COMS W4170: User Interface Design (Fall 2022)
  125 students Instructor eval.: Mean: 4.76 / 5 (SD: 0.61)
- COMS E6178: Human–Computer Interaction (Spring 2022)
  30 students Instructor eval.: Mean: 4.91 / 5 (SD: 0.30)
- COMS W4170: User Interface Design (Fall 2021)
  150 students Instructor eval.: Mean: 4.67 / 5 (SD: 0.65)
- COMS E6998: Human–Computer Interaction (Spring 2021)
  30 students Instructor eval.: Mean: 4.82 / 5 (SD: 0.60)

- COMS W4170: User Interface Design (Fall 2020)
  125 students Instructor eval.: Mean: 4.79 / 5 (SD: 0.59)
  ★ ***Distinguished Faculty Teaching Award (Columbia Engineering)*** ★
- COMS W4170: User Interface Design (Fall 2019)
  80 students Instructor eval.: Mean: 4.79 / 5 (SD: 0.47)

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 V1201: 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 V1101: 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

Oct. 2021 ***"AI and New Abilities"***
Moody's Corporation, New York, NY

Sept. 2021 ***"AI and New Abilities: Video Games for Blind Players"***
XR Access Research Network, New York, NY
Recording: https://youtu.be/NLMgPp_yMaY

Feb. 2021 ***"Designing Assistive Technologies for Agency: Blind-Accessible Video Games and Audio Navigation Tools"***
Stanford University, Stanford, CA

Nov. 2020 ***"Toward Self-Directed Navigation for People with Visual Impairments"***
Microsoft Research, Redmond, WA

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., Los Angeles, 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.