Bianca C. Datta

Graduate Student · MIT Media Lab

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Education

Massachusetts Institute of Technology, Media Lab: Object-Based Media Group — *Cambridge, MA*

Master of Science (2016), Doctor of Philosophy, Media Arts and Sciences, Expected graduation 2020 — *Sept 2014 - PRESENT*

- Research project on perception of materials and application to object communication, and emotive material properties
- Research project on fabrication of near-to-eye devices for holographic video applications and femtosecond laser micromachining
- Research project on electrorheological substrates for mechanosensitive cells, bio-active interfaces, and responsive material systems

University of Pennsylvania, School of Engineering and Applied Science (SEAS) — *Philadelphia, PA*

Bachelor's and Master's of Engineering, Major: Materials Science & Engineering — *Aug 2010 - May 2014*

- Senior Design Project on Artificial Doping in Self-Assembled Binary Nanocrystal Superlattices

Thomas S. Wootton High School — *Rockville, MD*

Humanities & Arts Signature Program, Laboratory for Experiential Education and Design (LEED) program — *Sept 2006- June 2010*

- Wootton Debate Team, Captain, Wootton Literary Arts Magazine (Pulp) Editor in Chief, Wootton Spanish Honor Society Exec
- Certificate of Meritorious Service, Achievement in Foreign Language Award, Designation of Meritorious for the Senior Independent Project, Merit Scholastic Award from the State of Maryland, Award of Excellence from the Maryland Bar Association

Experience

3M, Materials Resource Division — *St. Paul, MN*

Technical Intern — *Jun 2013- Aug 2013*

- Worked on the synthesis of semiconducting quantum dots and related characterization for industrial applications, conducted in-lab experimentation and analysis
- Used MATLAB to create a code to model optical properties of quantum dots
- Assisted with the design of the manufacturing process

UPenn Chemistry/Materials Science Departments, Murray Lab Group — *Philadelphia, PA*

Research Assistant: Nanocrystals for Solar Cells project — *Jan. 2011 - May 2014*

- Worked with graduate student to synthesize and prepare materials, fabricate and measure devices
- Presented posters on findings and maintain an elaborate lab notebook to analyze and organize data
- Applied for and awarded Penn Undergraduate Climate Action Grant worth $4000 to conduct research
- Experience with various instrumentation and characterization techniques: SEM, UV/Vis spectroscopy and flourometer, dip-coaters and spin-coaters, glove box and schlenk-line experience, photoconductivity, analyze TEM images

Brookhaven National Lab, Department of Energy — *Upton, NY*

Summer Undergraduate Laboratory Internship: Fabrication and Testing of Sub-micron X-ray Waveguides 2012 Using Anisotropic Etch Methods project — *June 2012- Aug 2012*

- Carried out preparation and etching of silicon substrates for fabrication
- Used SEM for characterization; certified in cleanroom operations
- Presented poster, technical report, and oral presentation for end of summer symposium

Teaching Experience

2011-2014 **Head Teaching Assistant**, EAS 101: Introduction to Engineering — *Philadelphia, PA*

2012-2014 **Teaching Assistant**, MSE 250: Nanoscale Materials Lab — *Philadelphia, PA*

Jan 2015 **Instructor/Mentor**, Media Lab India Initiative: Engaging Playful Experience Track — *Ahmedabad, India*

Fall 2016 **Facilitator/Instructor**, Media Lab First Year HowTo Class — *Cambridge, MA*

Leadership Activities

Maseeh College House

Cambridge, MA

Graduate Resident Tutor

Aug 2015-PRESENT

- Provide programming and support for around 80 undergraduate students, balance floor budget
- Work with resources across MIT to resolve conflicts and support students
- Foster individual relationships and promote effective personal communication, receive regular in-service training on issues around diversity and inclusion, safety, health and wellness, and education

MIT Office of the Dean of Graduate Education

Cambridge, MA

Graduate Community Fellow: Programs for Women

Sept 2015- PRESENT

- Provide programming to support women across MIT through conferences, events, etc.
- Organize and run annual Path of Professorship conference with around 25 speakers and over 70 attendees
- Currently working to share advice from the Graduate Women of Excellence program by producing a video and creating tokens with advice

Minds Matter Boston

Boston, MA

Mentor

September 2016- PRESENT

Addir Interfaith Program

Cambridge, MA

Fellow

September 2015- May 2016

Thirsty Ear Pub

Cambridge, MA

Bartender

September 2014- June 2015

MIT Women's Undergraduate and Graduate Mentorship Program

Cambridge, MA

Co-Chair

Aug 2014- PRESENT

- Granted a Graduate Student Life Grant of $2000 to reconstruct the program
- Connect women across MIT in small mentorship groups

Rodin College House

Philadelphia, PA

Resident Advisor and head of Visual Arts Engagement Program

Aug 2012- May 2014

- Managed and balanced a budget of $1300/semester
- Conceptualized, developed and executed theme-related educational and recreational programming (approximately one per month), collaborated with team-members to provided house-wide events for house of 800 residents, performed rounds while on duty once a month
- Supervised and facilitated over 20 residents, fostered community environment conducive to learning and personal development, selected hall theme and designed hall decorations accordingly

UPenn SEAS Green

Philadelphia, PA

Initiative Chair (2011), Co-President (2012-2014)

Jan 2011- May 2014

- Generated project ideas; collected data and conduct research; oversaw and facilitated project teams
- Created programming; assembled agendas; ran weekly meetings; planed, ran, and marketed events
- Coordinated and led meetings with internal and external faculty members and experts, recruited members

UPenn Eco-Reps

Philadelphia, PA

House Leader (2010), Executive Board Member (2011-2014)

Sept 2010- May 2014

- Organized, trained, and coordinated Team Leaders; coordinated and shaped Eco-Reps program
- Collaborated with environmental leaders to develop programs/events and promote sustainability

UPenn MSE Society

Philadelphia, PA

Alumni Chair, Marketing Chair, Peer Advisor

Sept 2011- May 2014

Publications and Conference Papers

Cargnello, Matteo, et al. "Substitutional doping in nanocrystal superlattices."Nature 524.7566 (2015): 450-453

Aug 2015

Datta, Bianca. "This is not a hologram." FOLD.(2015) https://fold.cm.

March 2015

MRS Spring 2017 Meeting — *Phoenix, Arizona*

Symposium: NM10: Micro/Nano Assembling, Manufacturing and Manipulation for Biomolecular and Cellular Applications: "Mechanosensitive Cell Behavior on Electrorheological Substrates," Bianca Datta, Sunanda Sharma, V. Michael Bove, Neri Oxman, MIT Media Lab — *April 2017*

SPIE Photonics West 2017 — *San Francisco, California*

Advanced Fabrication Technologies for Micro/Nano Optics and Photonics X: "Direct-laser metal writing of surface acoustic wave transducers for integrated-optic spatial light modulators in lithium niobate," Bianca Datta, Nickolaos Savidis, Michael Moebius, Sundeep Jolly, Eric Mazur, and V. Michael Bove, Jr., MIT Media Lab, Harvard University — *Jan 2017*

SPIE Photonics West 2017 — *San Francisco, California*

Advanced Fabrication Technologies for Micro/Nano Optics and Photonics X: "Progress in fabrication of waveguide spatial light modulators via femtosecond laser micromachining," Nickolaos Savidis, Sundeep Jolly, Bianca Datta, Michael Moebius, Thrasyvoulos Karydis, Eric Mazur, Neil Gershenfeld, and V. Michael Bove, Jr., MIT Media Lab, Harvard University — *Jan 2017*

SPIE Photonics West 2017 — *San Francisco, California*

Practical Holography XXXI: Materials and Applications: "Near-to-eye electroholography via guided-wave acousto-optics for augmented reality," Sundeep Jolly, Nickolaos Savidis, Bianca Datta, Daniel Smalley, and V. Michael Bove, Jr., MIT Media Lab, Brigham Young Univ. — *Jan 2017*

SPIE Photonics West 2016 — *San Francisco, California*

Advanced Manufacturing using a DMD or other SLM: "Fabrication of waveguide spatial light modulators via femtosecond laser micromachining," Nickolaos Savidis, Bianca Datta, Sundeep Jolly, V. Michael Bove Jr., MIT Media Lab. — *Feb 2016*

SPIE Photonics West 2016 — *San Francisco, California*

Digital Holography: "Progress in off-plane computer-generated waveguide holography for near-to-eye 3D display," Sundeep Jolly, Nickolaos Savidis, Bianca Datta, V. Michael Bove Jr., MIT Media Lab; Daniel Smalley, Brigham Young Univ. — *Feb 2016*

International Symposium on Display Holography 2015 — *St. Petersburg, Russia*

Session 4: Electronic, Digital & CGH "A computer-generated waveguide hologram for near-to-eye 3-d display", by Michael Bove, Sundeep Jolly, Nickolaos Savidis, Bianca Datta, Daniel Smalley(Poster Session) — *Jun 2015*

Honors & Awards

2015	**Recipient**, MIT Graduate Women of Excellence	*Cambridge, MA*
2014	**Recipient**, Penn Engineering Exceptional Service Award	*Philadelphia, PA*
2014	**1st Place**, William R. Graham Materials Science & Engineering Senior Design Award	*Phialdelphia, PA*
2013	**Recipient**, UPenn Dean's List	*Philadelphia, PA*
2010	**Recipient**, Maryland Comission for Women: Women of Tomorrow Award	*Annapolis, MD*
2010	**1st Place**, Columbia Scholastic Press Association: Essay Category for "Tea Ceremony," Pulp	*New York, NY*
2009	**Gold Medal**, American Association of Teachers of Spanish and Portuguese: National Spanish Exam	*Rockville, MD*
2009	**1st Place**, Maryland Scholastic Press Association:Inside-Page Design	*Rockville, MD*
2008	**1st Place**, Columbia Scholastic Press Association: Color Photography for "Man on a Can," Pulp	*New York, NY*
2008	**1st Place**, Maryland Scholastic Press Association: Magazine Photography for "Jutewhala," Weld	*Rockville, MD*

Affiliations & Skills

Professional Memberships

2015-2016 **Student Member**, MRS, Materials Research Society
2016-2017 **Student Member**, SPIE, International Society of Optics and Photonics
2016-2017 **Student Member**, IEEE, Institute of Electrical and Electronics Engineers

Skills

- Adobe Photoshop, InDesign, Illustrator, Microsoft Office Software
- Comsol, MATLAB, Solidworks
- Cleanroom experience, Nanofabrication Experience, SEM, AFM, Wet Etching, E-Beam Lithography, Chemical Development
- Rapid prototyping and fabrication tools, 3-D printing,laser cutting, computer-controlled machining, water-jet cutting, etc.

Interests

- Running (running my fourth half-marathon in March!), Photography, Reading, Tea