Yitzchak D. Lockerman

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Education

PhD - Yale University (2016)

- PhD, Computer Science - Department of Computer Science
- Focus on utilizing unsupervised machine learning to acquire textures and materials
- Dissertation: "Increasing Accessibility to the Acquisition of Realistic Looking Materials"
- Teaching Fellow for classes including Advanced Topics in Computer Graphics and Artificial Intelligence

Masters - Yale University (2014)

- Master of Science, Computer Science
- Master of Philosophy, Computer Science

Bachelors - Queens College of the City University of New York (2010):

- Bachelors of Science, Computer Science
- Minors in Math and BALA (Business and Liberal Arts)

Research and Projects

PostDoc, NYU Tandon School of Engineering (2016 – present)

- Designed and implemented new backend for the Sounds of New York City (SONYC) project
- Additional ongoing projects involving deep learning, distributed sensing, and data acquisition

Co-Chair, Brooklyn Research Cluster Steering/Guiding Committee (2017 – present)

- Spearheaded a new university wide private cloud for High Performance Computing
- Prepared RFP, negotiated with vendors, and supervised hardware and software installation
- Pilot started in Spring 2018

PhD Student, Yale Graphics Group (2010 – 2016)

- Created systems for user assisted extraction of textures from arbitrary natural images
- Developed automated system for texture decomposition and extraction from images
- Worked with unsupervised machine learning techniques such as diffusion manifolds and nonnegative matrix factorization
- Designed and built low cost systems to acquire material and geometric information from objects with strong subsurface scattering
- Collected, processed, and built storage systems for multi-terabyte data sets
- Led a six person international collaboration which resulted in a SIGGRAPH publication
- Supervised and mentored six students' research projects

Director of Cloud Services, Yale CS Cloud (2015 – 2016)

- Designed, implemented and directed the Yale Computer Science Department's research cloud
- Authored proposal, secured funding, and negotiated with vendors.

- Utilized by five research groups with multiple resulting papers in different fields
- Supervised users and student staff and organized faculty oversight committee

Research Assistant, Queens College Microwave Laboratory (2006 - 2010):

- Designed computational procedures for the analyses of singularities in randomly scattered microwave fields
- Computed normalizing functions to reduce mesoscopic statistics to Gaussian statistics
- Simulated waves to test published theoretical results
- Prepared students for research projects

Patents

Y. Lockerman, H. Rushmeier, and J. Dorsey, *"Systems and Methods for Creating Texture Exemplars"* Patent granted (2015).

Publications

F. Miranda, M. Lage, H. Doraiswamy, C. Mydlarz, J. Salamon, **Y. Lockerman**, J. Freire, C. Silva, *"Time Lattice: A Data Structure for the Interactive Visual Analysis of Large Time Series"* Computer Graphics Forum (2018)

Y. D. Lockerman, B. Sauvage, R. Allègre, J. M. Dischler, J. Dorsey, and H. Rushmeier, *"Multi-Scale Label-Map Extraction for Texture Synthesis"* ACM Transactions on Graphics (2016)

Y. D. Lockerman, S. Brenner, J. Lanzone, A. Doronin, and H. Rushmeier, *"Testing Spatial Patterns for Acquiring Shape and Subsurface Scattering Properties"* Proc. Measuring, Modeling, and Reproducing Material Appearance (2016)

H. Rushmeier, **Y. Lockerman**, L. Cartwright, D. Pitera, *"Experiments With a Low-Cost System for Computer Graphics Material Model Acquisition"* Proc. SPIE 9398, Measuring, Modeling, and Reproducing Material Appearance (2015)

X. Cheng, **Y. Lockerman**, A. Z Genack *"Generic Diffusion of Phase Singularities"* CLEO: 2014, OSA Technical Digest (2014)

X. Cheng, **Y. Lockerman**, and A. Z. Genack, *"Phase Singularity Diffusion"* Optics Letters, Vol. 39, Issue 11 (2014)

Y.D. Lockerman, S. Xue, J. Dorsey, H. Rushmeier *"Creating Texture Exemplars from Unconstrained Images"* Yale Technical Report, TR1483 (2013)

Y.D. Lockerman, S. Xue, J. Dorsey, H. Rushmeier *"Creating Texture Exemplars from Unconstrained Images"* Computer-Aided Design and Computer Graphics (CAD/Graphics) - Best poster award (2013)

Y.D. Lockerman, S. Xue, J. Dorsey, H. Rushmeier "*Case Study: Real Time Texture Extraction Using Real Time Diffusion Manifolds.*" Challenges in Geometry, Analysis and Computation: High Dimensional Synthesis, Poster Session, Yale University (Poster - 2012)

S. Zhang, **Y. Lockerman**, and A. Z. Genack, "*Mesoscopic Speckle*," Physical Review E 82,05114 (2010)

S. Zhang, **Y. Lockerman**, J. Park and A. Z. Genack, "*Interplay Between Generic and Mesoscopic Speckle Statistics in Transmission Through Random Media*," Journal of Optics. A: 11, 094018 (2009).

S. Zhang, B. Hu, **Y. Lockerman**, P. Sebbah, and A. Z. Genack, "*Observation of Singularities in Multiply Scattered Microwave Fields*," Journal of the Optical Society of America A. **24**, A33-A38 (2007)

Presentations

Testing Spatial Patterns for Acquiring Shape and Subsurface Scattering Properties (2016)
Electronic Imaging: Measuring, Modeling, and Reproducing Material Appearance

Lightweight Texture/Material "Acquisition" (2015)
Tel Aviv University

Computer-Aided Design and Computer Graphics (CAD/Graphics) Fast Forward (2013)
City University of Hong Kong

Yale Teaching Fellowships

Advanced Topics in Computer Graphics (2014)
Artificial Intelligence (2012)
Introduction to Programming (2012)
Introduction to Computer Science (2011)

Honors and Scholarships

Best Poster Award, CAD/Graphics (2013)
For poster: "Creating Texture Exemplars from Unconstrained Images"

NSF Graduate Research Fellowship Program Honorable Mention (2010, 2012)
"*…considered a significant national academic achievement…"* - NSF 14-590

Highest Honors in Business and Liberal Arts (2010)
Queens College

Molly Weinstein Memorial Prize (2010)
Queens College "…to one graduate each year with a superior record of scholarship and goal of pursuing a career in college teaching"

The Philip Drummond Memorial Award (2010)
Computer Science Department of Queens College

Goldwater Scholar (2009)
Barry M. Goldwater Scholarship, 300 awarded per year nationally

Michael Craig-Scheckman Award for Undergraduate Research (2009)
Queens College Department of Physics "in recognition of superior scholarship"

CUNY Leadership Award (*2009)*
Awarded to two students from each campus per year for "major contributions to the community and the College"

Academic Services and Extracurricular Activities

Yale Programming Teams Assistant Coach (2010 - 2013)
Trained undergraduates for participation in the ACM International Coregent Programing Competition (ICPC).

Executive Committee Member (2009 - 2010)
Queens College Academic Senate (Handles tasks traditionally performed by a faculty senate)

Alternate Senator (2008 - 2010)
Queens College Academic Senate (Handles tasks traditionally performed by a faculty senate)

Programming Team Captain (2009 - 2010)
Organized four teams to participate in the ACM's ICPC
Helped organized class on "Advanced Programming Techniques"

Writing Intensive Subcommittee Member (2008 - 2010)
Oversees Queens College's "Writing Intensive" classes

Undergraduate Scholastic Standards Committee Member (2008 - 2010)
Applies the standards of the college to individual students