Daphne E. Schlesinger

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Education

2018–present	**Massachusetts Institute of Technology** PhD in Medical Engineering and Computer Science
2014–2018	Johns Hopkins University BS in Biomedical Engineering and in Physics

Work Experience

2019–present	**Collin Stultz's Computational Cardiovascular Research Group** *Graduate Researcher* • Noninvasive inference of central hemodynamics in patients with heart failure from single and multi-lead electrocardiograms • Incorporating mechanistic insights into machine learning for cardiovascular disease
2019	Thomas Heldt's Integrative Neuromonitoring and Critical Care Informatics Group *Research Rotation* • Evaluating predictive models for vasopressor administration in the emergency department
2017–2018	The Institute for Data Intensive Engineering and Science (IDIES) *Undergraduate Researcher* • Processing and analysis of pathology scans • Design and implement a graphical user interface for pathology image analysis
2014–2018	Jordan Green's Biomaterials and Drug Delivery Laboratory *Undergraduate Researcher* • Development and fabrication of microscale needles for drug delivery • Fabrication and testing of microfluidic devices for monodisperse polymer particle synthesis • Testing of laser triggered drug release and shape memory in PLGA microparticles

Work Experience (cont.)

2017	Johns Hopkins University Department of Biomedical Engineering *Teaching Assistant* • Precepting and grading for a cell biology course, Molecules & Cells
2017–2018	Johns Hopkins Center for Bioengineering Innovation and Design (CBID) *Undergraduate Design Team Leader* • Recruit and manage a team of students to develop a design solution to a biomedical problem • Project subject: Detecting malfunction in cerebroventricular shunts
2015–2017	Johns Hopkins University Academic Support *Peer-Led-Team (PILOT) Learning Group Leader* • Help peers to develop problem solving skills in Multivariable Calculus and Electricity & Magnetism
2016	Johns Hopkins Applied Physics Laboratory (APL) *Summer Research Intern* • Electromagnetic simulations on metamaterial models in CST Microwave Studio
2015–2016	Johns Hopkins University Department of Physics & Astronomy *Physics I Lab Learning Assistant* • Assisted students in Physics I laboratory course by explaining methods and answering technical questions

Honors & Awards

2020	**National Science Foundation Graduate Research Fellow**
2018	David T. Yue Memorial Award for Undergraduate Teaching
2016	Provost's Undergraduate Research Award

Computer Languages

Proficient in	Python (TensorFlow and PyTorch), MATLAB, LaTeX, Unix, Bash
Exposure to	Julia, Java, SQL

Additional Activities

2022	Learning from Time Series for Health (TS4H) NeurIPS workshop reviewer
2022	Machine Learning for Healthcare (ML4H) conference reviewer
2019-2020	MIT Graduate Hillel Student Board *President*
2018–2019	Harvard-MIT Health Sciences and Technology Joint Council *Representative to the MD Curriculum Committee*
2017-2018	Engineering Educational Outreach, Barclay Middle School, Baltimore, MD *Student Leader*

Publications

2022	Daphne E Schlesinger, Nathaniel Diamant, Aniruddh Raghu, Erik Reinertsen, Katherine Young, Puneet Batra, Eugene Pomerantsev, and Collin M Stultz. A deep learning model for inferring elevated pulmonary capillary wedge pressures from the 12-lead electrocardiogram. *JACC: Advances*, 1(1):100003, 2022
2020	Daphne E Schlesinger and Collin M Stultz. Deep learning for cardiovascular risk stratification. *Current Treatment Options in Cardiovascular Medicine*, 22(8):1–14, 2020
2018	Qiongyu Guo, Corey J Bishop, Randall A Meyer, David R Wilson, Lauren Olasov, Daphne E Schlesinger, Patrick T Mather, James B Spicer, Jennifer H Elisseeff, and Jordan J Green. Entanglement-based thermoplastic shape memory polymeric particles with photothermal actuation for biomedical applications. *ACS applied materials & interfaces*, 10(16):13333–13341, 2018

Poster Presentations

2022	MIT Jameel Clinic AI Cures Conference
	RHCNet: A deep learning model for inferring elevated pulmonary capillary wedge pressures from the 12-lead electrocardiogram
	DE Schlesinger, N Diamant, A Raghu, E Reinertsen, K Young, P Batra, E Pomerantsev, CM Stultz
2022	American College of Cardiology Scientific Session
	A deep learning model for inferring elevated pulmonary capillary wedge pressures from the 12-lead electrocardiogram
	DE Schlesinger, N Diamant, A Raghu, E Reinertsen, K Young, P Batra, E Pomerantsev, CM Stultz
2018	BMES Annual Meeting
	Computational Modeling of Valve Behavior in Hydrocephalus Shunts
	DE Schlesinger, R Najmi, V Ayyappan, D Navarro, W Zhao, H Wiegand, S Hemmati, A Kleine, C Heier, M Luciano, A Manbachi
2018	BMES Annual Meeting
	Experimental Characterization of Valve Behavior in Hydrocephalus Shunts
	DE Schlesinger, R Najmi, V Ayyappan, D Navarro, W Zhao, H Wiegand, S Hemmati, A Kleine, C Heier, M Luciano, A Manbachi
2017	Tissue Engineering & Regenerative Medicine Annual Conference
	Entanglement-based thermoplastic shape memory polymeric particles with photothermal actuation for biomedical applications
	DE Schlesinger, Q Guo, CJ Bishop, RA Meyer, DP Wilson, L Olasov, JB Spicer, JH Elisseeff, JJ Green
2017	IDIES Annual Symposium
	Big Data Approaches to Cancer Immunotherapy
	DE Schlesinger, T Cotrell, P Nguyen, S Berry, B Green, N Giraldo, JM Taube, A Szalay
2016	International Nanomedicine & Drug Delivery Symposium
	Polymer microneedles for advanced transdermal drug delivery
	DE Schlesinger, RA Meyer, JJ Green

Patents

2022	Submitted: *Method and Apparatus for Inferring Elevated Pulmonary Capillary Wedge Pressures from Single-Lead Electrocardiogram Telemetry Data* DE Schlesinger, R Alam, CM Stultz