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VESAL DINI

education

Ph.D, Physics, Tufts University, Expected 2015.

Dissertation: *Navigating the Edges of Knowledge: The Role of Personal Epistemology in Learning Quantum Mechanics*.

M.S., Physics, University of Pennsylvania, 2003.

B.S.E., Bioengineering, University of Pennsylvania, 1999.

experience

Tufts University

Lecturer, Center for STEM Diversity, Summer 2012, 2013 & 2014

Taught *Introduction to Classical Mechanics* using research-based reformed methods including...

Fellow, Graduate Institute for Teaching, Summer 2013

Participated in workshops on educational psychology and teaching pedagogy, and taught introductory physics under faculty supervision.

Teaching Assistant, Department of Physics & Astronomy, 2009 - 2013

Conducted discussion and laboratory sections, graded homework and examinations, and held office hours for courses on classical mechanics and electrodynamics.

Instructor, Department of Education, 2010-2012

Co-taught online courses focused on advancing teachers' understanding of science as a process of inquiry as they conducted and reflected on a series of experiments in thermodynamics.

Massachusetts Institute of Technology

Research Staff, Biomolecular Materials Group, 2007-2009

Synthesized and tested iridium oxide nanoparticles and nanowires, and selected for aluminum-oxide binding bacteriophage through phage display.

Science Education Fellow, Kavli Institute, 2006-2007

Developed and taught project-based astronomy courses, including a youth apprenticeship program that created a black hole exhibit for the Museum of Science Boston.

School of the Nations (Macau, China)

Science and Mathematics Teacher, 2005-2006

Taught five one-year classes in physics, biology, algebra and calculus to prepare students for Cambridge University's Certificate of Secondary Education.

Foundation for the Application and Teaching of the Sciences (Cali, Colombia)
Education Intern, 2003-2005

Developed online delivery model for graduate course "Constructing a Conceptual Framework for Social Action" and participated in curriculum development for mathematics instruction.

Lockheed Martin Corportation (Moorestown, New Jersey)
Systems Engineer, 1999-2003

Developed simulations to test tracking algorithms for an advanced radar system, including one that determined detectability and resolvability of debris spawned from separating rockets.

papers & posters

Magyar, Andrew, Shanying Cui, Yoon-Sung Nam, Vesal Dini, and Angela Belcher. "Biotemplated Synthesis of Materials for Photo-Oxidation of Water." Presented at the Materials Research Society 2008 annual meeting, Boston, MA.

Porro, Irene, Vesal Dini, and Timothy Prol. "Youth Astronomy Apprenticeship (YAA)." MIT Kavli Institute for Astrophysics and Space Research. Presented at the Astronomical Society of the Pacific 2007 annual meeting, Chicago, Il.

Lefferts, Robert E., Vesal Dini. "Performance of Range Walk Corrected and Non-Coherently Integrated High Resolution Radar Data with CFAR Processing and Compaction." Lockheed Martin Proprietary, AP-Z-IRD-T-2023, 2003.

Swears, Eran K., Vesal Dini. "Track Initialization and Correlation Simulation." Lockheed Martin Proprietary, AP-Z-IRD-T-2021, 2003.

Dini, Vesal. "Localizing the Payload Carrying Vehicle of an ICBM Following Thrust Termination." Lockheed Martin Proprietary, AP-Z-IRD-T-2022, 2002.

DeSimone, A.J., Vesal Dini. "Sensitivity of the Covariance Projection onto the Missile Seeker Frame Due to Target-Missile-Ship Geometry." Lockheed Martin Proprietary, AP-Z-MIS-T-2295, 2001.

Dini, Vesal. "Beam Shape Loss." Lockheed Martin Proprietary, CS-Z-SPY-T-2126, 2001.

Dini, Vesal, Rupesh Patel. "Spatial-Temporal Brain Imagining." Undergraduate Senior Design Project advised by Professor Britton Chance and presented at undergraduate research symposium, 1999.

honors & awards

John F. Burlingame Graduate Fellowship in Physics, recognizing outstanding achievement by a graduate student, 2013-2014.

Special Mention for Outstanding Graduate Student Contribution to Undergraduate Education, Tufts University, 2013 & 2014.

American Association of Physics Teachers' Outstanding Teaching Assistant Award, Tufts University Department of Physics and Astronomy, 2013.

additional

Member, American Physical Society (2000-Present)

Languages: Fluent English & Persian; rudimentary Spanish, French, and Chinese.