

Leslie Dewan

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Education **Massachusetts Institute of Technology**

Doctoral candidate in the Department of Nuclear Science and Engineering

Research focus: Examining radiation damage effects in glasses using molecular dynamics simulations, with the aim of developing a more mechanically and chemically stable glass medium for long-term storage of high-level nuclear waste.

Massachusetts Institute of Technology

Bachelor of Science in Mechanical Engineering, June 2007

Bachelor of Science in Nuclear Engineering, June 2007

GPA: 4.4/5.0

Experience **Vecna Technologies**

Robotics Engineer

2007 - 2008

Nuclear Engineering Consultant

2008

- Mechanical design, development, and manufacture of the BEAR, a 6.5 foot tall hydraulically actuated humanoid robot capable of dynamic balancing on two legs.
- Developed a proof-of-concept device that used laser-induced breakdown spectroscopy and surface-enhanced Raman spectroscopy for field identification of chemical and nuclear weapons.

Center for Materials Research and Ethnography, MIT

2004 - 2009

Principal researcher modeling mechanical characteristics of prehistoric watercraft

- Designed and implemented software to model stress patterns, size limits, cargo capacity, and aerodynamic and hydrodynamic characteristics to evaluate sailing ability in various weather conditions and ocean currents.
- Led team of thirty to design and build a replica raft (five meters in length) to empirically test sail efficiencies and steering mechanisms.

Additional Design Projects and Teaching

- Instructor for the MIT undergraduate Materials Science class 3.094, "Materials in Human Experience." (Spring 2009)
- Developed lesson plans and taught engineering and design principles to middle school students at the Fletcher-Maynard School in Cambridge, MA. (2008)
- Designed and built a cyclotron capable of accelerating protons to 2 MeV, as a Nuclear Engineering undergraduate thesis at the Francis Bitter Magnet Laboratory. (2007)
- Taught seven-week intensive analog robotics class to high school students in conjunction with MIT's Educational Studies Program. (2006)
- Researched and designed robust and inexpensive essential oil distillation equipment in conjunction with MIT's International Development Initiative. System was constructed specifically for use in Haiti, and used recycled materials readily available in that country. (2005)
- Designed a hydraulic ram for use in highland Guerrero, Mexico capable of delivering a continuous supply of water to remote villages without electricity. (2004)

Skills

Computer Software: SolidWorks, SolidEdge, AutoCAD, Ansys, Ricardo WAVE, Matlab, LabVIEW, Metrowerks CodeWarrior, Eclipse, LaTeX, GULP, DL POLY

Programming Languages: C, C++, Java, Python

Machine Tools: Lathe, Mill, OMAX Waterjet, Plasma cutter

Awards

Named an **MIT Presidential Fellow**, 2008-2009. Undergraduate research was funded by the **Paul E. Gray Fund**, MIT. Awarded first place in the 2007 **American Nuclear Society Undergraduate Student Design Competition** for "Design for a Compact Neutron Interferometer."

Publications

Ancient Maritime Trade Between Ecuador and Western Mexico on Balsa Rafts: An Engineering Analysis of Balsa Raft Functionality and Design. *Journal of Anthropological Research*, Volume 64, Number 1, 2008. (first author)

Design for a Compact Neutron Interferometer. *Transactions of the American Nuclear Society*, Volume 97, 2007.