
Education

- Worcester Polytechnic Institute (WPI) (Senior: Class of 2013); Major in Biomedical Engineering with a concentration in Biomechanics (Neuroprosthetics); Humanities depth concentration in the History of Technology and breath concentration in English Writing; Current courses of major concentration include: Foundations in Biological Transport Phenomena, Bioelectric Foundations, Biomedical Engineering Design, Neurobiology, Human Anatomy, Physiology & Engineering, Rehabilitation Engineering, Biomaterials. GPA: 3.51; Major GPA: 3.80.
- Massachusetts Academy of Mathematics and Science (Grade(s) 11-12); FIRST Robotics Team @ WPI, Vex Robotics elective, Advanced Inquiry Physics, Mathematical Modeling, Science and Technical Writing, Computer Science, Intermediate Spanish (AP Level), Humanities, Chemistry, STREAM (Engineering Research Project).
- Leominster High School (Grade 9), Leominster, MA; Ranked First in Class of 2011; Final GPA 3.95; course work included: Honors Algebra II, Honors Biology, Honors American History I, Honors Freshman English, Spanish II, Honors Geometry (online course).

Honors and Awards

- 2nd Annual WPI NanoWorcester Symposium Presenter and Participant, *Project Title*: “Electrophysiological Proof-of-Concept Studies of a Sub-retinal Prosthesis Based on an Okayama-type Design” (2012).
- 1st Annual WPI Biomedical Engineering Society Research Symposium Presenter and Participant, *Project Title*: “Electrophysiological Proof-of-Concept Studies of a Sub-retinal Prosthesis Based on an Okayama-type Design” (2012).
- Bioengineering Institute at Worcester Polytechnic Institute Neuroprosthetics Symposium Attendee (2011, 2012).
- WPI Presidential Scholarship Recipient & National Consortium of Specialized Secondary Schools of Mathematics, Science, and Technology (NCSSSMST) Scholarship Recipient (2010-2013).
- Certificate of Appreciation: In recognition of my invaluable volunteer services for Arc and Matson Community Services (Special Olympics Unified Partner) (2011).
- Massachusetts Academy of Math and Science, Science Fair Winner (2009).
- 2nd award at Worcester Regional Science and Engineering Fair at Worcester Polytechnic Institute (2009).
- Clean technology award—Worcester Regional Science and Engineering Fair at Worcester Polytechnic Institute (2009).
- 3rd award State Science Fair at Massachusetts Institute of Technology (2009).
- 1st place Leominster High School science fair (2008).
- 2nd award Worcester Regional Science and Engineering Fair at Worcester Polytechnic Institute (2008).
- Genzyme Clean Technology Award and Seminar Invitation—Worcester Regional Science and Engineering Fair at Worcester Polytechnic Institute (2008).
- 2nd award State Science Fair at Massachusetts Institute of Technology (Teradyne Award); Acknowledgement letter from Al Gore (2008 science fair) (2008).
- Vex Robotics; Judges award, Finalist award @ WPI Competition; Championship award @ South Competition (2008); Fifth Place @ South Competition; Chairman’s Award @ South Competition (2009).
- High School Mathematical Contest in Modeling (HiMCM) 36-Hour Mathematical Modeling Competition, Honorable Mention (2008).
- Rookie Caddy of the year, Worcester Country Club (2006).
- Alpine Ski Instructor of the year Nominee, Wachusett Mountain (2007).
- Marksman Award, Leominster Sportsman’s Association (2006).

Extracurricular Activities

- WPI Residential Advisor – Upper-class East Hall (2012-2013).
- Community Service; Special Olympics soccer partner and basketball partner (2008-present); Middle School Science Fair Judge (2011); Boston Rescue Mission (2008); Sholan Farms community work (2007); Local Church Volunteer (2005).
- Original Founder and President of WPIs Longboarding Club (2011-present).
- Active Brother of WPIs nationally recognized Lambda Chi Alpha, Pi Zeta Fraternity, Pi 1691 (2010-present); WPI Lambda Chi Alpha North East Conclave attendee (2012); MIT North East Greek Leadership Seminar attendee (2011); Served on the Sigma committee (2010-2011); Phi & Beta committee (2012-present).
- WPI Lacrosse (2010-present); Leominster Varsity Lacrosse (2008); Middlesex Premier Lacrosse League (MPLL) (2007); Harvard Youth Lacrosse (2007); U15 All-Star Lacrosse Game Player at Harvard Stadium (2007); Accepted/Invited to Team Central Lacrosse (2007).
- WPI Biomedical Engineering Society (WPI BMES) active member, undergraduate mentor and mentee (2009-present).

- WPI Student Support Network (SSN) (2011); Trained to expand and enrich the network of support on WPIs campus so that every member of the WPI community has people looking out for him or her and knows where to go for more help when things get tough.
- WPI Sailing Team (2009-present); Sailing at Boston Community Boating (Boston) and Regatta Point Sailing Member (Worcester) (2006-2011).
- WPI FIRST Robotics team member at Worcester Polytechnic Institute (one of 15 total team members) (2008-2009).
- President (elect) of Class 2011 Leominster and Student Council Member (2007-2008).
- Renaissance Program Chair (2007-2009); organize benefits for students earning academic recognition.
- Kite surfing (2010-present).
- Surfing (2007-present); 9th Annual Long boarding Competition contender, placed 8th (2008); 11th Annual, placed 4th (2011).
- Alpine and Freestyle Skiing (2000-present).
- Ukulele and Piano (2010-present); purchased and self-taught ukulele and piano instrumentalist.
- Drums (1999-present); School jazz band/School Concert band (2000); All city jazz band (2000).

Employment

- Bioengineering Institute (BEI) Neuroprosthetics Research Assistant at WPI Gateway Park (2011-present).
- Leominster State and Recreational Pool Water Safety Instructor (Supervisor) and Head Lifeguard Manager (2011).
- Biomedical Engineering Myocardial Regeneration Lab Assistant at WPI Gateway Park (2010-2011).
- Biomedical Engineering Department Office Assistant at WPI Gateway Park (2010-2011).
- Water Safety Instructor; Leominster State and Recreational Pool (2010).
- Lifeguard; Leominster State and Recreational Pool (2009-2010).
- Lifeguard; Oak Hill Country Club (2008).
- Ski Instructor; Wachusett Mountain (2006-2010).
- AA golf caddy Worcester Country Club (2006-2009); Sterling Country Club (2006-2007); International Country Club (2007).
- Sal's Pizza and Breakfast Assistant Chef, Leominster MA (2010).

Certifications

- American Red Cross Water Safety Instructor (WSI) Certified (2010-present).
- American Red Cross State Lifeguard Certified (2009-present).
- American Red Cross Lifeguard Certified (2008-present).
- American Red Cross Waterfront Lifeguard Certified (2008-present).
- American Red Cross CPR/First Aid/AED Certified (2008-present).
- Ski Instructor Certified (2006-present).
- Helmsman Sailing Certification (2006-present).
- Lab safety certified, WPI (2010-present).
- Unified Partner Certified; Working with Athletes of the Special Olympics (2008-present).
- National Institutes of Health (NIH) Office of Extramural Research Certified; successfully completed the NIH Web-based training course "Protecting Human Research Participants". Certification Number: 799535 (2011).

Computer Skills

- WinWCP (Windows Whole Cell Program), MATLAB, LabVIEW, KaleidaGraph, PLT Dr. Scheme/Racket, Dashcode (html), Mathematica, Maple, EasyC (Robotics Programming), Microsoft Office applications (Word, Excel, PowerPoint, Entourage/Publisher, etc.), Windows, Unix, OS X (Mac) computer operating systems, Solid Works CAD, Final Cut Pro, Adobe Photoshop, Adobe After-effects, Terminal (command prompt for pc/mac), Unix, Logger pro, Audacity, Firefox, Internet Explorer, Safari, Email (various servers), Garage Band, Adobe Reader, and GSP X 4.07 (Geometers Sketch Pad).

Research Experience

- *Bioengineering Institute (BEI) of Neuroprosthetics at WPI Gateway Park (2011-present)*: I am currently an undergraduate research assistant for Professor Christopher Lambert within the Biology and Chemistry department at WPI and BEI Neuroprosthetics. I am working closely with many graduate and senior college students in an effort to grow and stimulate NG-108 15 neurons on photoreceptive surfaces in an effort to produce a retinal prosthesis. I have in depth experience in cell culture techniques, surface metrology, solution preparation, and patch-clamping, in addition to proper safety and etiquette in wet and dry laboratory environments. I assisted in the design and testing process of an inverted microscope ITO current induced slide holder for patch-clamping procedures. I also assist other graduate and senior college students in basic lab procedures and instruct new volunteers in general and specific lab procedures. Publication of results is pending.

- *Interdisciplinary Qualifying Project (IQP) (2011-2012)*: University administrators are concerned with growing trends in abuse of the prescription stimulant Adderall on college campuses. Previous studies show that college students have ignored the risks associated with using Adderall. WPI currently has no data on Adderall abuse; therefore, this project surveyed the undergraduate population, collected online narratives, and interviewed experts and administration. Totally, 13% reported abuse, a comparatively lower rate than other schools. This study offers a typical abuser profile and discusses the attitudes regarding abuse on campus. Final Grade: A. Publication of results is pending.
- *Inquiry Seminar: Psychophysical Genius: a Theory, a Controversy, a Refinement (2012)*: In partial fulfillment of The Humanities & Arts Requirement at Worcester Polytechnic Institute, this final research paper serves as the culmination of the capstone course. The following paper addresses the claims made by Eugenics regarding intelligence testing and its relation to developed statistical methods of measurement. From the works of psychologists and statisticians, these claims were refined and the tie between now common statistical analysis techniques, eugenics, and psychophysical human intelligence measurement has been cut. Final Grade: A.
- *Biomedical Engineering Myocardial Regeneration Lab at Gateway Park, WPI (2010-2011)*: I was an undergraduate research assistant for Professor Glenn Gaudette, and direct research assistant for Nancy Leslie. We were working on a novel method of seeding human mesenchymal stem cells (hMSC) onto micro fibrin threads which would then be threaded into a post-infarcted heart to help re-grow and repair dead and non regenerative cardiac tissue. I worked closely with graduate and predoctoral students participating in one of the research areas in the regeneration lab at WPI. I have hands-on experience in aspects of tissue engineering, including solution preparation, sterile cell culture technique, cytochemistry, cryostat-training, fluorescence cell staining protocols, microscopy and general lab administration, maintenance and safety. I attended weekly lab meetings to gain a broader knowledge of tissue regeneration efforts at WPI as well as presenting our work and efforts as a team to others. I remain affiliated with this lab through the email alias and occasionally attending laboratory meetings.
- *Senior Independent Study Project (SISP) (2009-2010)*: I constructed a blokart (land-sailboat) out of common materials. I idealized, CADed, and built my final design during my senior year of high school. I then presented the final product to students and faculty of the high school. It demonstrated my individual ability of following the engineering design process during my high-school senior year at the Massachusetts Academy of Math and Science. Final Grade: A.
- *Small-scale unit for solar cogeneration and Steam Methane Reforming (SMR) (2008-2009)*: Research and development of an alternative energy solution utilizing solar energy to generate electrical energy (axial-flux alternator with a three phase rectifier) with the use of a steam engine, hydrogen production with the use of steam methane reforming technology (SMR), and heating elements all together in a cogeneration system from the use of a solar concentration device (Archimedes solar concentration device) all implemented for a household use. Final Grade: A.
- *Solar TEC-fg (Solar thermal electrical chemical fuel generator) (2007-2008)*: Research and development of an alternative energy solution utilizing solar energy to generate electrical energy (axial-flux alternator with a three phase rectifier) and hydrogen (electrolysis) with the implementation of ancient devices (Hero's engine/Archimedes solar concentration device). Final Grade: A.

Publications

- Online Publication Co-author; Lagoy, Ross et al. (2010). *Airplanes - Inventions That Changed History*, Mass Academy Inventions Ebook, from docs.google.com.