

# Rhian C. Preston

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CONTACT INFORMATION	Robotics Research Assistant <i>Oregon State University, SHARE Lab</i> <i>Robotics, Software, and Electrical Engineering</i>	mobile: (719) 332-9423 e-mail: prestonr@oregonstate.edu GitHub: reakain.github.com Thingiverse: thingiverse.com/reakain
RESEARCH INTERESTS	Nuclear robotics engineer with experience in software and embedded system design for underwater inspection robots for nuclear reactors, looking to pivot towards HRI with an emphasis on motion planning, machine learning, vision, and touch sensing development for assistive robot development and better human-robot emotional bonding.	
MS	<b>Worcester Polytechnic Institute, ROBOTICS</b>	<b>January 2015 – Jun 2019</b>
MS	<b>University of Wisconsin - Madison, NUCLEAR ENGINEERING</b>	<b>Aug 2013 – Dec 2014</b>
BS	<b>Oregon State University, NUCLEAR ENGINEERING</b> <ul style="list-style-type: none"><li>• Minor in Physics</li></ul>	<b>January 2011 – Jun 2013</b>
WORK EXPERIENCE	<b>Framatome Inc., Lynchburg, VA</b> <i>Design Engineer, Voyager Rotational Program</i> Multi-year rotational program for accelerated development of young engineers.	<b>Sep 2016 – July 2020</b>
	<i>Software &amp; Electrical Engineer III, Non-Destructive Examination Team</i> Develop user tools for camera recording, snapshotting, and setup via remote client to third party multi-camera surveillance system.	<b>Aug 2019 – July 2020</b>
	<i>Electrical Engineer III, Stearns-Roger Services</i> Path planning, communication, and UI for smart crane system. Interface between Siemen's PLC and C# WPF application with persistent database. Simulation application for operator training for smart crane system. Schematics, interconnect, wiring diagram, and PLC design for a smart crane system.	<b>Aug 2018 – Aug 2019</b>
	<i>Software &amp; Electrical Engineer III, Non-Destructive Examination Team</i> Microcontroller specification, PCB troubleshooting, and software development and implementation for PoE inspection system. Included embedded C programming of PIC microcontrollers for variable number of motors as well as analog camera control. Development of C# inspection plugin with UI and SQLite database for inspection data. On-the-fly kinematics and feedback for UR-10 robot arm through a C++ with Qt plugin.	<b>Jan 2018 – Aug 2018</b>
	<i>Fuel Design Engineer II, Fuels Neutronics - Boiling Water Reactors</i> Boiling water reactor neutronic licensing analysis. Core and bundle fuel design.	<b>Nov 2015 – Dec 2017</b>
	<i>Engineering Intern, Fuels - Site Support</i> Python development of UI wrappers for Fortran code. Qt rebuild for Windows 7 of Java application for in-core monitoring.	<b>Jun 2013 – Aug 2013</b>
RESEARCH EXPERIENCE	<b>Worcester Polytechnic Institute, Robotics Dept.</b> <i>Graduate Capstone Project, Reversing Autonomous Tractor Trailer</i> Team project to develop an autonomously reversing tractor trailer utilizing machine vision, 3D simulation, and inverse kinematics to simulate automated reversing up to a loading bay.	<b>Jan 2019 – May 2019</b>
	<b>University of Wisconsin - Madison, NEEP Dept., Madison, WI</b> <i>Graduate Research Assistant, PEGASUS Toroidal Plasma Experiment</i> Altium design and layout of FPGA twisted pair interconnect boards for signal noise filtering of a high power magnetic system.	<b>Aug 2013 – Dec 2014</b>

PUBLISHED ROBOTS	[1] “Generic Quest Giver”, Twitter: <a href="https://twitter.com/QuestGiverBot">https://twitter.com/QuestGiverBot</a> . Source: <a href="https://github.com/reakain/QuestGiver">https://github.com/reakain/QuestGiver</a> . Nov. 2019.	
	[2] “Tarot Reader”, Twitter: <a href="https://twitter.com/TarotReaderBot1">https://twitter.com/TarotReaderBot1</a> . Source: <a href="https://github.com/reakain/TarotReader">https://github.com/reakain/TarotReader</a> . Nov. 2019.	
	[3] “Storyteller”, Twitter: <a href="https://twitter.com/BotStoryteller">https://twitter.com/BotStoryteller</a> . Source: <a href="https://github.com/reakain/StoryTeller">https://github.com/reakain/StoryTeller</a> . Nov. 2019.	
CONFERENCE ABSTRACTS	[4] <b>Preston, R.C.</b> , Bongard, M.W., Fonck, R.J., Lewicki, B.T. “Magnetics and Power System Upgrades for the Pegasus-U Experiment.” (poster) <b>56th Annual Meeting of the APS Division of Plasma Physics</b> . New Orleans, Louisiana. October 2014.	
OTHER PUBLICATIONS	[5] <b>Kain, R.</b> , Drop. Short Story, Amazon Kindle Select. July 2018.	
MEDIA COVERAGE	[6] Morrow, J. “Engineers earn national kudos for creating nuclear fuel assembly model” <b>Tri-Cities Area Journal of Business</b> July 2018. <a href="https://www.tricitiesbusinessnews.com/2018/07/framatome-award/">https://www.tricitiesbusinessnews.com/2018/07/framatome-award/</a> .	
ENGINEERING TEACHING	<b>University of Wisconsin-Madison</b> DEPT. OF ENGINEERING PHYSICS <i>EMA 201, Statics</i> Engineering Statics recitation lectures, exam creation, and grading	
	<b>Oregon State University</b> DEPT. OF ELECTRICAL & COMPUTER ENGINEERING <i>ENGR 201, Electrical Fundamentals I</i> Analysis of linear circuits, circuit laws and theorems, DC responses of circuits, operational amplifier characteristics and applications, recitation lectures, quiz creation, and grading	
	<b>South Dakota School of Mines &amp; Technology</b> DEPT. OF PHYSICS <i>PHYS 111L, Introduction to Physics I Laboratory</i> Algebra level fundamental physics concepts	
COMPUTING SKILLS	<b>Languages</b> C#, Qt, bash/csh, C++, FORTRAN, Python, XML, CSS, Javascript, R, Lua <b>Build Systems</b> make, CMake, automake <b>Databases</b> MySQL, SQLite, SQL Express <b>Version Control</b> git <b>Physics Engines</b> Unity, Godot, MCNP, RELAP <b>Other Development Tools</b> ROS, Docker, LabView, L <sup>A</sup> T <sub>E</sub> X, Mathematica, MatLab, TIA Portal <b>3D CAD Tools</b> Autodesk Inventor, SolidWorks, Blender, 3ds Max, StarCCM+ <b>2D CAD Tools</b> AutoCAD, Altium, Inkscape	
HARDWARE SKILLS	<b>Shop Tools</b> mill, lathe, table saw, various power tools/saws	
	<b>Electronics</b> soldering, oscilloscope	
	<b>Other Tools</b> FDM 3D printers, laser cutter	
	<b>Metalwork</b> blacksmithing, welding	
	<b>Plastics</b> casting and molding	

PROFESSIONAL SERVICE	<b>Chair</b> , Framatome-Lynchburg Chapter, NAYGN	<b>2018–2019</b>
	<b>Vice Chair</b> , Framatome-Lynchburg Chapter, NAYGN	<b>2018–2018</b>
	<b>Advocacy Chair</b> , Framatome-Richland Chapter, NAYGN	<b>2017–2018</b>
	<b>Member</b> , Framatome-Richland Chapter, NAYGN	<b>2015–2017</b>
	<b>Member</b> , American Nuclear Society	<b>2009–2017</b>
	<b>Member</b> , Enlight Computer Projects, University of Wisconsin-Madison	<b>2013–2014</b>