Victor Bajenaru

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Education:

M.S. in Computer Science, *Georgia Institute of Technology* *Graduated Dec 2019*
- Concentrations: Artificial Intelligence and Computer Vision; Overall GPA: 3.89/4.0

M.S. in Mechanical Engineering, *University of Washington* *Graduated Dec 2017*
- Concentration: Robotics; Overall GPA: 3.62/4.0

B.S. in Mechanical Engineering, *Rensselaer Polytechnic Institute* *Graduated May 2014*
- Concentration: Manufacturing; Overall GPA: 3.58/4.0; Major GPA: 3.68/4.0

Artificial Intelligence/Machine Learning Experience:
- Professional experience identifying machine learning opportunities and developing models (see Skyworks experience below)
- Academic experience in five graduate courses delving into AI/ML concepts, as well as independent ML theory research
  - Coursework code/analysis: Graduate Machine Learning, Machine Learning for Trading, Deep Learning, Artificial Intelligence for Robotics, Knowledge-Based Artificial Intelligence
  - Noteworthy academic analyses: Supervised Learning, Randomized Optimization, Unsupervised Learning, Reinforcement Learning, Time-Series Stock Trading Learner, Novel Machine Learning Research Ideas
- Personal project experience developing a profitable Stock Arbitrage system. Developed an innovative trading strategy and complementary reinforcement learning algorithm to perform automatic stock trading on 12 exchanges.

Available Code Repositories:
- **Public**: deep-learning, control-systems-and-engineering, arduino-projects, cryptogram-game-android, apache-python-server, engineering-ambassadors-site-LAMP-stack, medication-app-Docker-Tomcat-NodeJS
- **Private:** machine-learning, AI-for-robotics, AI-with-computer-vision, computer-vision, networks-and-security, software-architecture-and-testing, health-informatics-Java-FHIR, high-performance-computing

Work Experience:

Skyworks Solutions Woburn, MA; ***Software Engineer*** *Jun 2017 – Current*
- Supported the six Skyworks wafer fabrication plants in North America and Asia by developing software automation and websites for workflow streamlining, data extraction, and metric reporting, for use by operators/engineers/management
- Developed optimization algorithms for dispatching ideal wafer manufacturing sequencing, and for financial predictions
- Identified/developed machine learning for yield prediction (using supervised learning), root cause analysis (using dimensionality reduction), and wafer defect classification from images (using deep learning for computer vision methods)

The Boeing Company Everett, WA; ***Control Systems Data Engineer****, 777x Composite Wing Fabrication* *Jun 2016 – Jun 2017*
- Supported management/process/tool KPI data requirements through implementing equipment data collection on equipment controllers, performing Extract/Transform/Load jobs from various data sources, and optimizing database retrieval speeds
- Served as machine controls focal for specification writing, design reviews, and buyoff of new equipment

The Boeing Company Everett, WA; ***Equipment Engineer (Rotation #4)****, 747, 767, and 777* *Dec 2015 – Jun 2016*
- Supported production equipment by performing cost estimates, leading project implementation, and providing engineering support in areas of mechanical/electrical/controls/software for upgrading equipment

The Boeing Company Renton, WA; ***Stress Engineer (Rotation #3)****, 737MAX* *Jun 2015 – Dec 2015*
- Performed static, fatigue, and DT analysis of wing structure for design releases and sustaining non-conformances
- Improved the efficiency of wing box design by developing three VBS/VBA scripts to reduce time on common processes

The Boeing Company Everett, WA; ***Design Engineer (Rotation #2)****, 747-8* *Dec 2014 – Jun 2015*
- Implemented four structural design improvement projects resulting in a savings of $10,400 per plane
- Identified 23 additional design change opportunities which will have a total projected savings of $124,100 per plane

The Boeing Company Tukwila, WA; ***Manufacturing Engineer (Rotation #1)****, P-8 Poseidon* *Aug 2014 – Dec 2014*
- Wrote manufacturing plans, integrated product upgrades into production system, and ensured timely product schedule

UTC Aerospace Systems Middletown, CT; ***Delivery Assurance Analyst****, Pratt & Whitney Jet Engines* *Aug 2013 – Dec 2013*
- Coordinated with suppliers and production to ensure on-time delivery of incoming and outgoing parts

SemiGen, Inc. Manchester, NH; **Element Manufacturing, LLC** Nashua, NH; ***SMT Operator*** *Summer 2011; Summer 2010*
- Set up and operated machinery to paste circuit boards, place components, reflow, and wash final products
- Reduced processing time of assembly by 20% through improvements made for SMT, conveyor furnace, and pasting machines

CohesionWorks, Inc. Brookline, NH; **Hollis Interactive, Inc.** Nashua, NH; ***Web Developer*** *Jan 2011 – Aug 2011; Jan 2009 – Jan 2010*
- Used HTML, PHP, CSS, JavaScript, and SQL to create and update websites, often working closely with clients
- Implemented content management and eCommerce systems; Designed and implemented a multi-tenant database system

Professional Research Experience:

Ergonomic Lifting Solutions, UW Boeing Advanced Robotics Center; ***Research Associate*** *Summer 2016*

- Identified recurring unsafe lifting scenarios at Boeing's Propulsion Systems Assembly Division
- Determined profitable lifting solutions ranging from packaging redesign to pneumatic hoists with 3D printed end effectors

Enhancement of Thermoelectric Devices, Instituto de Microelectrónica de Madrid, Spain; ***Research Associate*** *Summer 2013*

- Discovered electrodeposition parameters to increase efficiency of the "Bi-SB-Te" n-type thermoelectric films
- Created COMSOL simulation method helpful for understanding the electrodeposition calibration process, cyclic voltammetry

Simulation of Blasch VectorWall™ for SRU Applications, Blasch Precision Ceramics & SCOREC RPI; ***Research Associate*** *Summer 2012*

- Conducted background research for simulation methods and chose most effective design principles

Research in Nanofluids, NSF Nanofluid Grant & MANE RPI; ***Research Associate*** *Jan 2011 – Jan 2012*

- Developed idea and plan to produce publication based on existing research literature and available resources
- Created two experiments, for volatile fluid viscosity and thin wire TCR, using the Design of Experiments methodology
- Upgraded experiment for low range liquid thermal conductivity to perform more precisely and accurately

Noteworthy Side Projects:

Smart Medication List: GT Health Informatics Class; Team of 4; github.com/vicb1/medication-app-Docker-Tomcat-NodeJS *2019*

- Consulted with a Doctor to develop website for seamless medication scheduling for patients, compatible with all U.S. hospitals
- Uses Tomcat backend with the Java FHIR API, NodeJS frontend, and compiles using pipeline Github->Jenkins->Rancher->Docker

Cryptogram Android Game: GT Software Architecture and Testing Class; Team of 4; github.com/vicb1/cryptogram-game-android *2018*

- Developed Cryptogram (text decryption) game on Android that features game creation, gameplay, and player statistics
- Exercised various software architecture planning and software testing methods such as developing class diagrams and test cases

Stock Brokerage Arbitrage System: Personal Project *2017*

- Developed software for connecting to 12 brokerages and trading between them to capture profit from trader inefficiencies

Upshot Nutrition: UW Computer Science Entrepreneurship Class; Team of 8 *2017*

- Developed iPhone App and Alexa Skill for easy food recording through photo and voice recognition
- Developed feature for micro-nutrient monitoring of recorded food, and interface to compare with baseline goals

EnviroCool Technology: RPI Inventor's Studio Capstone Class; Individual Project *2014*

- Designed home cooling system for specific climates that is three times more efficient compared to current technologies

Victory Alzheimer's Diagnosis: RPI Inventor's Studio Capstone Class; Individual Project *2014*

- Designed and prototyped eye-movement recording system and website to predict Alzheimer's disease

Rensselaer Formula Hybrid Racing: RPI Extracurricular Activity; Team of 15 *2013-2014*

- Worked on a team to design and build a hybrid race car; Designed steering subsystem; Organized changes to meet regulations

Skills:

- **Programming Languages**: Python, C++, C, Java, SQL, JavaScript, PHP, HTML/CSS, VBS/VBA, MATLAB, Ladder Logic, Git
- **Python Packages**: pyspark, numpy, scipy, pandas, gym, mdptoolbox, mlrose, scikit-learn, xgboost, keras, pytorch, opencv, pillow, imageio, numba, pycuda, rapidsai, threading, sqlalchemy, win32com, requests, urllib, regex, matplotlib, seaborn
- **Software:** LabVIEW, Simulink, Minitab, COMSOL Multiphysics, SolidWorks, AutoCAD, NX, CATIA, ENOVIA, ANSYS, Apache Server, NodeJS, Tomcat, Docker, Jenkins, Rancher Kubernetes, Windows Task Scheduler, Linux Cron Jobs, Conda, Spark, MS SQL, MySQL, MariaDB, Oracle, Sharepoint Designer, Spotfire, Power BI, SSRS Reports, Tableau, Cognos, KEPServerEX, GE Proficy Suite, SAP, AWS Lambda, AWS RDS, AWS S3, Google Firebase, AWS APIs, Google APIs, Various Stock Brokerage APIs
- **Embedded Controllers:** Siemens, Fanuc, Allen-Bradley, KUKA, Beckhoff, Schneider Electric, Arduino, Raspberry Pi
- **Robotic Machinery:** composite layup/cure, milling/drilling, sanding, painting, 3D printing, autonomous guided vehicles
- **Certification:** ISO Level 2 Accredited Vibration Analyst
- **Languages**: Romanian, French, Spanish

Achievements:

- **Upshot Nutrition Project**: UW Business Plan Competition Big Picture Prize *sponsored by AARP Foundation* *2017*
- **Boeing ONE Continuous Surveillance Project**: 1st place award among three competing business unit teams *2015*
- **Formula Hybrid Racing International Competition**: 6th Place Overall Award Trophy *2014*
- **ASME International Mechanical Engineering Congress & Exposition, *Houston, TX*:** Sponsored for DeWitt Poster Session *2012*
- **NH Science Olympiad**: 1st Place Award in Mission Impossible (Rube Goldberg-type electronic contraption) *2011*
- **FIRST Robotics Team**: Quality Award *sponsored by Motorola*, Coopertition™ Award, Regional Champion Award *2010*

Leadership:

- **Co-Lead**: Boeing REACH (Employee Involvement) Seattle Site *2016*
- **Co-Lead, Structures Lead, and Cost Lead**: Boeing ONE Continuous Solar Surveillance Project *2015*
- **President:** Pi Tau Sigma Mechanical Engineering Honor Society, RPI *2014*
- **Ambassador/ Web Developer**: RPI Engineering Ambassadors (presented to schools to inspire young audience) *2012-2014*