

Education

PhD | Biomedical Engineering

RPI | 2013-2017

- Research: machine learning, image processing, brain imaging, surgical skill assessment
- Advisor: Suvranu De, Xavier Intes

MS | Biomedical Engineering

RPI | 2010-2012

- Research: image processing, virtual simulators, surgical skill assessment

BS | Biomedical Engineering

University of Minnesota - TC |
2005-2009

Skills

Languages

Expert

python • SQL • matlab

Proficient

CSS • bash • C++ • HTML • R

Machine Learning

Open source frameworks

pytorch • scikit-learn • pandas
numpy • scipy • catboost • lightgbm
cuDF • cuML • shap

Algorithms

gradient boosting • SVM • clustering
regression • classification • PCA / LDA
decision trees • NLP
model selection • model validation

General

AWS S3 • AWS EC2 • postgres
elasticsearch • kibana • tableau
linux • mac • UNIX • git • docker
L^AT_EX • jupyter • sublime • atom
vim • flask • dash • gunicorn
nginx • seaborn • plot.ly
matplotlib • OpenCV • REST api •
cron



Experience

Sr. Data Scientist | Food Genius (acquired by US Foods)

Jul 2018 - present

- Directly collaborate with cross-functional business leads and understanding the business need, aggregating & exploring data, building & validating predictive models, and deploying completed models.
- Designed, built, and deployed a full-stack, machine-learning based web app that predicts supply chain service levels enterprise wide, with **36%** higher balanced accuracy than food industry standards.
- Manage three data scientists at US Foods to execute on cross-functional business initiatives across merchandising, supply chain, and marketing teams

Research Scientist | Rensselaer Polytechnic Institute

Sep 2010 - Dec 2017

- Developed and validated machine learning models (linear discriminant analysis, support vector machines, and logistic regression) using brain imaging data to assess surgical motor skill proficiency
- Validated classification models to robustly (ROC - AUC = 0.94) predict motor skill levels with a **113%** higher accuracy than current US Surgery Board Certification methods
- Led three multi-institutional NIH clinical studies with **\$2M** of funding in collaboration with Massachusetts General Hospital, Harvard Medical School, Yale Medical School, and University at Buffalo




Manufacturing Engineer | St. Jude Medical (acquired by Abbott)

Jun 2009 - July 2010


- Used data driven methods to prove value of an automated part inspection system resulting in net cost reductions of **~\$200k / year**

Key Publications and Talks

Articles

- Assessing bimanual motor skills with optical neuroimaging *Science Advances* 
- Convergent validation and transfer of learning studies of a virtual reality-based pattern cutting simulator *Surgical Endoscopy* 
- Noninvasive brain imaging demonstrates that surgical skills transfer from training simulators to ex vivo models *JACS* 

Conference podium talks

- Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) 
- American College of Surgeons (Clinical Congress)
- Optical Society of America (OSA)

Social good and interests

Social good

- Tutored adults ranging from jail inmates to single working moms towards their GEDs. www.lvorc.org
- Mentored at-risk, low-income Albany high school students to help them succeed and engage in STEM programs. www.4thfamily.org

Interests

- I'm a huge film buff and have seen almost every major TV series on HBO. Want to kill a few hours? Ask me about the Sopranos, The Wire, or GoT
- I'm also a training pilot and love flying around Chicagoland