

## TIMOTHY ROZARIO

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### PROFILE

Highly motivated and result oriented data scientist with a passion for building scalable learning systems that address ambiguous and undefined real-world problems ■ Successfully led cross-functional teams in analyzing large data sets, and uncovering key actionable insights, identifying trends and measuring performance ■ Frequent speaker at top conferences on data science

### EDUCATION

#### University of Texas at Dallas – Dallas, USA

**Doctor of Philosophy in Computer Science: GPA 3.86 / 4.0**

**2010 - 2015**

- Led 3-member team investigating novel techniques to optimize Radiation Therapy
- Published two high impact medical physics journal papers
- Presented at top international conferences

#### Anna University – Chennai, India

**Bachelor of Technology in Information Technology: GPA 3.80 / 4.0**

**2002 - 2006**

- Led 3-member team to 1<sup>st</sup> prize in the final semester project for creativity and originality using virtual reality – 1<sup>st</sup> among 300 participating students
- Led 5-member team managing the audio/visuals content of college online presence
- Captained table tennis and quiz teams to regionals – top 3% in 270 schools

### TECHNICAL SKILLS

**Machine Learning:** classification, regression, clustering, generative adversarial models like GANs

**Statistical Methods:** time series, regression models, hypothesis testing, principal component analysis and dimensionality reduction

**Software and Programming Languages:** Python – packages such as numpy, scipy, pandas, scikit-learn, keras, tensorflow, JAVA, C++, C, JAVA Script, Matlab, SQL, Linux, LaTeX

**Selected Coursework:** Data Structures, Algorithms, Probability and Statistics, Statistics for Data Science, Machine Learning and Deep Learning in Python

### RELEVANT WORK EXPERIENCE

#### Software Programmer/Consultant: Siemens Automation Division Partner Frontal Software

**2007 - 2009**

- Designed and implemented the furnace and inventory modules of SMART FOUNDRY app for top 5 Asian foundry that reduced production costs by 13%
- Led 3-member team designing and implementing Intelligent event reporting system for Global 500 pharma company that increased just-in-time report generation by 30% and production throughput by 12%
- Managed the company's participation at top foundry expo that led to 7% increase in product inquiries and generated a total of \$7M in new projects
- Key member of consulting team that secured \$6M foundry project overseas - presented to middle and high level management, conducted detailed on-site plant study, analyzed data and designed sustainable solution

#### Post-Doctoral Fellow - Data Scientist: UT Southwestern Medical Center, Radiation Oncology

**2015 - Present**

- Led 2-member team designing and implementing production-ready deep learning model for asset and patient management that resulted in a 27% decrease in patient turnaround time
- Built and deployed clinical tool with deep learning that automates tumor-site organ detection with 100% accuracy while saving 35% of physician treatment planning time
- Created and heading intra-institutional big data cleaning initiative using machine learning for improving clinical best practices and promoting research initiatives

- Presented two part lecture series on the importance of Machine Learning in Radiation Oncology that resulted in the formation of the first AI group in Radiation Oncology and the initiation of 7 research projects

**Research Intern: UT Southwestern Medical Center, Radiation Oncology****Summer 2015**

- Successfully designed and built anomaly detection model that predicted irregularities in tumor trajectories using recurrent nets
- Tested in-house radiation treatment auto planning tool with NVIDIA GPUs that achieved 10X speed-up

**Research Assistant: University of Texas at Dallas, Erik Jonsson School of Computer Science****2010 - 2015**

- Designed and built novel marker-less tumor tracking models in lung cancer that reduced gold standard error from 3mm to 1.6mm
- Successfully designed and implemented algorithm for automatic inflight collision detection of synchronized fleet of drones with web based visualization tool
- Constructed graph visualization tool that presented the first direct solution to solving sextic equations

**Teaching Assistant: University of Texas at Dallas, Erik Jonsson School of Computer Science****2011 - 2015**

- Taught and assisted data-structure, algorithm and programming courses
- Graded exams, projects and homework, and provided direction for project design and implementation
- Consistently received excellent student evaluations in the 95<sup>th</sup> percentile

**President of Grads of Computer Science – Largest student body on campus: University of Texas at Dallas 2014 - 2015**

- Introduced advanced level bridging course that increased full-time job offers for grad students by 12%
- Organized informational sessions with technology giants such as Amazon, AT&T with internship opportunities
- Introduced summer boot camp for middle schoolers introducing them to computer programming

**SELECTED AWARDS AND RECOGNITION**

**National Science Foundation NSF:** Received outstanding researcher scholarship in 2014 and 2015 – 15 recipients nationally

**Cancer Prevention Research Institute of Texas CPRIT:** Received travel scholarships and a grant for projects - 2015 to present

**BIOWEBSPIN: #1 Academic - Industry Partnering Network:** Award for high-impact customer centered product development

**SELECTED PUBLICATIONS**

**Towards automated patient data cleaning using deep learning: A feasibility study for the standardization of organ labeling:** T. Rozario et al. 2017, Journal of Physics in Medicine and Biology -Under review

**Automatic Region of Interest ROI detection for Prostate Cancer using Deep Neural Networks:** T. Rozario et al. 2017 AAPM American Association of Physics in Medicine

**An accurate algorithm to match imperfectly matched images for Lung Tumor detection without markers:** T. Rozario et al. 2015, Journal of Applied Clinical Medical Physics

**SELECTED PRESENTATIONS**

**Importance of Machine Learning in Radiation Oncology:** Two part lecture series on the potential of using deep learning to improve clinical best practices and stimulate in-house research initiatives

**Automatic Region of Interest ROI detection for Prostate Cancer using Deep Neural Networks:** Presented at top international conference in Denver, CO. 2017

**An Intra-fraction marker-less daily lung tumor localization algorithm for EPID images:** Invited scholar at PETRA conference, Island of Corfu, Greece. 2015

**PERSONAL**

**Community** Compassion International – promotion and child sponsor; LIFT – Volunteer for design of study material

**Interests** Guitarist, Vocalist for Irish Rock Band; Song writer; Market Analyst and Manchester United fan