Anirudh Tomer

PhD Statistician · Machine Learning · Programming

Rotterdam, Netherlands

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PhD data scientist with 7.5 yrs of ML + programming experience in Python, R, SQL, Java, and Linux

Skills

Programming Python, R, Java, C++, SQL, Linux, shell scripting, HTML, JavaScript, Git, Docker, Jenkins, Eclipse.

Machine learning Neural networks, NLP, Image processing, GLM, GLMM, LASSO, clustering, SVM, Bayesian mixed effects models, Markov decision processes, survival analysis, time series analysis, joint models.

Work Experience

Data Scientist
Rotterdam, Netherlands

P95 *Sep 2020 – Present*

- **Project-1**: World Health Organization (W.H.O.) COVID-19 vaccine side effects. Implementing experimental designs and latest mathematical models from research articles in R, Monte Carlo simulations, causal inference, strategy and programming for data analysis.
- **Project-2**: COVID-19 modeling with a mRNA vaccine manufacturer. Leading statistical efforts in a team of 3 data scientists, modeling of COVID data (mixed models, LASSO, causal inference, Bayesian statistics), putting ML models into production for auto training and generation of reports with new data over time, high level discussions with clients.
- **Project-3**: Building a ML-app for experimental design of Dengue and Influenza vaccine trials: Programming in R and RShiny, Firth-regression, Monte carlo simulations, business discussions with our client, translating statistics into business terms and vice versa.
- **Project-4**: Time-dependent R number, incidence rates, and survival analysis of COVID-19 data for worldwide sites. Programming to automate model fitting on Linux servers, implementing methods from research articles that are not available in software packages.
- Prediction modeling in large health records, high dimensional data analysis, feature engineering, providing data science training.

Visiting Researcher
Rotterdam, Netherlands

ErasmusMC *Sep 2020 – Aug 2021*

- Joint models for time-to-event and longitudinal data, dynamic predictions, personalized medicine, Markov decision processes.

Statistician
Rotterdam, Netherlands

ErasmusMC *Sep 2016 – Aug 2020 (4 years)*

- Successfully conducted *60 data science projects* in 4 years, lots of programming (can be confirmed with the company).
- Developed machine learning algorithms for predicting cancer, model validated in cancer surveillance data of *the entire world* in collaboration with the Movember foundation. Available as a web-app via `https://tiny.cc/biopsy`
- Models: GLM, GLMM, cluster analysis, multivariate statistics, neural networks, decision trees, LASSO, Bayesian methods.
- Domains: bioassay analysis, personalized medicine, clinical trials, prediction modeling, study designs, writing research articles.

ML Engineer
Leuven, Belgium

Katholieke Universiteit Leuven *Jul 2015 – Aug 2015*

- A short one month gig to develop demos for a ML algorithm that finds features in images of clothes.

R&D Software Developer
Pune, India

TIBCO Software *Aug 2011 – Jul 2014 (3 years)*

- Implementing complex event processing and machine learning algorithms for TIBCO's analytics software.
- Conducting simulations on Linux servers, writing building scripts, and deployment of services.
- After 2 years, became the lead full stack developer on TIBCO Hawk and TIBCO SPM, independent discussions with sales and product management for new features.
- Developed a machine learning algorithm to improve browser responsiveness, which was also filed as a patent `https://patents.google.com/patent/US20140258382/en`.

Co-Founder
Pune, India

TimeNome *Oct 2013 – Mar 2014*

- Seed stage startup for analysis of time series data from IoT devices. Did everything from programming to pitching ideas to investors.

Software Development Intern *Pune, India*

Media Magic Technologies *Aug 2010 – Apr 2011*

- C++ programmer for transcoding live streamed videos according to the codecs installed on mobile devices.

Software Development Intern *Pune, India*

Amdocs *Jul 2009 – Jan 2010*

- Data mining and knowledge extraction from Wikipedia pages and developing a Java swing app.

Education

PhD Statistics *Rotterdam, Netherlands*

Erasmus University Rotterdam *Sep 2016 – Aug 2020*

- Developed new statistical theory and models in Bayesian statistics. Thesis URL: `https://tiny.cc/anirudh_phd_thesis`

MSc Statistics *Leuven, Belgium*

Katholieke Universiteit Leuven *Sep 2014 – Jul 2016*

- Grade: Magna cum laude, 77.59%. Thesis URL: `http://tiny.cc/MScthesis_anirudh`

BE Computer Engineering *Pune, India*

University of Pune *Aug 2007 – Jul 2011*

- Grade: First class with distinction, 74.41%.

Grants, Awards, Achievements

2021	**Invited speaker,** for personalized schedules using dynamic predictions at ISCB Conference.	*Lyon, France*
2020	**Honorable mention,** Hans van Houwelingen award for the best Dutch Biometry paper.	*Netherlands*
2019	**500,000 SBU on Cartesius,** Dutch national supercomputer usage grant.	*Netherlands*
2019	**Invited speaker,** Rshiny workshop by Vereniging voor Statistiek en Operations Research.	*Leiden, Netherlands*
2018	**Student award,** 10-th EMR-IBC Conference.	*Jerusalem, Israel*
2018	**Runner-up,** Best Student Oral Presentation Competition, 29-th IBC Conference.	*Barcelona, Spain*
2014	**Scholarship for MSc Statistics,** J.N. Tata gift scholarship and travel grant.	*Mumbai, India*
2011	**Dean's Gold medal,** for highest grades in Bachelor studies.	*Pune, India*

Scientific Publications

- Tomer, A, Nieboer, D, Roobol, MJ, Steyerberg, EW, and Rizopoulos, D (2020), Personalized schedules for shared decision making of burdensome surveillance tests. Under review at *Annals of Applied Statistics*.

- Schuurman, AS, Tomer, A, Akkerhuis, KM, Brugts, JJ, Constantinescu, AA, van Ramshorst, J, Umans, VA, Boersma, E, Rizopoulos, D, and Kardys, I (2020). Personalized screening intervals for measurement of Nterminal pro-B-type natriuretic peptide improve efficiency of prognostication in patients with chronic heart failure. *European Journal of Preventive Cardiology.* Advance online publication.

- Tomer, A, Nieboer, D, Roobol, MJ, Bjartell, A, Steyerberg, EW, Rizopoulos, D (2020). Personalized biopsy schedules based on risk of Gleason upgrading for low-risk prostate cancer active surveillance patients. *BJU International*. Advance online publication.

- Tomer, A, Rizopoulos, D, Nieboer, D, Drost, FJ, Roobol, MJ, and Steyerberg, EW (2019). Personalized decision making for biopsies in prostate cancer active surveillance programs. *Medical Decision Making*. doi: `https://doi.org/10.1177/0272989X19861963`

- Nieboer, D, Tomer, A, Rizopoulos, D, Roobol, MJ, and Steyerberg, EW (2018). Active surveillance: a review of risk-based, dynamic monitoring. *Translational Andrology and Urology*, 7(1), 106–115. doi: `https://doi.org/10.21037/tau.2017.12.27`

- Tomer, A , Nieboer, D, Roobol, MJ, Steyerberg, EW and Rizopoulos, D (2019), Personalized schedules for surveillance of low-risk prostate cancer patients. *Biometrics*, 75: 153-162. doi: `https://doi.org/10.1111/biom.12940`

- Papageorgiou, G, Mauff, K, Tomer, A, and Rizopoulos, D (2019). An overview of joint modeling of time-to-event and longitudinal outcomes. Annual review of statistics and its application, 6, 223-240.