

Dr.-Ing. RAMANATHAN PERUMAL

Lead Data Scientist, Pfizer

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SUMMARY

- Highly skilled computational scientist with a Ph.D. in Engineering, specializing in scientific computing and data science.
- 12+ years of Strong Hands-on Experience in Data Analytics using Exploratory Data Analysis, Statistical Analysis, Mathematical Modeling and Machine Learning applied in various Industrial and academic projects.
- Proficient in programming languages including R, Python, and C/C++, coupled with a deep understanding of software development principles and best practices.
- Authored 6 peer-reviewed international scientific research articles (Citations:79, h-index:5).

EDUCATION

Karlsruhe Institute of Technology (KIT)

Ph.D in Computational Science & Data Processing;

Karlsruhe, Germany

Aug. 2013 – Dec. 2019

Indian Institute of Technology Madras (IITM)

M.Tech in Materials Engineering;

Chennai, India

Aug. 2011 – May. 2013

Anna University

B.E in Materials Engineering;

Chennai, India

Aug. 2004 – Apr. 2008

SKILLS

Languages: R, C/C++, Python, JavaScript, SQL

Technologies: Unix, AWS, Git, Docker, Power BI

Concepts: Machine Learning, Mathematical modeling, Statistical analysis, Data visualization, Open-source software development, Cloud Computing, Agile Methodology.

EXPERIENCE

Pfizer

Manager; Lead Data Scientist - R Center of Excellence (R CoE)

Chennai, India

Sep. 2022 – Present, Full-time

- Collaborates closely with the leadership team of the R CoE and project teams from various business lines, in order to effectively implement technical solutions for prevailing business challenges.
- Identifying, building, and deploying reusable data science pipelines and workflows, R packages, Shiny applications, and modules.
- Support cross-pharma initiatives in the open-source development space, contributing to review and helping to define the development roadmap for R packages in Pharma space.
- Provide strong technical knowledge of R, R packages, Shiny Apps, Markdown reports and other associated data science and data analytics tools (e.g. Python) and ML methods to business lines across Pfizer.

Atorus Research

Data visualization engineer

Bengaluru, India

Dec. 2021 – Aug. 2022, Full-time

- Development and implementation of Atorus software products, overseeing the entire lifecycle from conceptualization to user interface design and technical programming implementation.
- Proficiently engaged in the development, validation, and maintenance of packages/libraries, demonstrating expertise in multiple programming languages such as R and Python.
- Successfully managed a dynamic code base, employing software versioning tools and adhering to best practices in continuous integration to streamline the development process.

Infosys

Chennai, India

Senior Associate Consultant

Jan. 2021 – Dec. 2021, Full-time

- Designed and developed visually compelling R Shiny dashboards for the Engineering team at Openreach (BT), UK.
- Created complex dashboards to track and analyze overall broadband network connectivity, providing valuable insights for decision-making.
- Contributed to the improvement of Openreach's network monitoring capabilities through the implementation of innovative data visualization techniques.
- Actively participated in testing and debugging processes to guarantee the reliability and accuracy of the deployed solutions.

Miloni Gems & Gem Source

UAE

Data Scientist

Jul. 2020 – Dec. 2020, Freelancer

- Developed and deployed R-Shiny dashboards on AWS, incorporating Quick filters, Parameters, and ML models to enhance data manipulation and analysis capabilities.
- Demonstrated expertise in constructing price predictive models, contributing to data-driven strategies for business decision-making.

Karlsruhe Institute of Technology (KIT) & Hochschule Karlsruhe

Karlsruhe, Germany

Research Engineer

Jul. 2013 – Apr. 2020, Full-time

- Responsible for performing the different types of mathematical (multiphasefield) models for materials design based on the available materials data sources.
- Large scale simulation studies in High-Performance Computing (HPC) facilities: implementation in C, C++ for Linux.
- Worked with the Scientific software development team in designing and upgrading the In-house parallel computing package "Parallel Algorithms for Crystal Evolution" (PACE3D).
- Analyze tera-byte scale simulation data to deliver insightful analytics that solves key problems in research.
- Build and execute the institute's data mining and modeling activities in support of statistical packages R and Python.

Karlsruhe Institute of Technology (KIT)

Karlsruhe, Germany

Research Fellow

Sep. 2012 – Mar. 2013, Full-time

- Received the prestigious DAAD IITM Master Sandwich Program fellowship - Master thesis research at Institute of Nano Technology, KIT, Germany.
- Produce materials with unique mechanical and physical properties resulting in capabilities outside the known performance boundaries of existing materials.

Indian Institute of Technology Kanpur

Kanpur, India

Research Assistant

Aug. 2010 – Apr. 2011, Full-time

- Conducted extensive research in the field of Organic Photovoltaics and Printable Electronics, specializing in the optimization of materials and structures.
- Applied data analysis techniques to enhance device efficiency and extend the lifetime of Organic Photovoltaic devices, contributing to advancements in sustainable energy solutions.

Aeronautical Development Agency

Bengaluru, India

Junior Research Fellow

Jun. 2009 – Jul. 2010, Full-time

- Worked closely with DRDO and HAL, Bangalore engineers, and subject matter experts to identify opportunities and implement improvements to "Light Combat Aircraft" (LCA) Airframe Structures.
- Identify business reporting and analytic needs by collaborating with stakeholders and technology teams.

Vedanta Resources Limited

Tuticorin, India

Process Engineer

Jun. 2008 – Jun. 2009, Full-time

- Responsible for the ownership of the factory's smelter material flow activities, their update, and implementation.
- Work closely with IT system engineers to collect and analyze the operational data for fault detection and diagnostics and preventative maintenance.

CERTIFICATES

Amazon Web Services <i>AWS Certified Cloud Practitioner CLF-C02 certification</i>	<i>Apr. 2024</i>
LinkedIn <i>Python Projects</i>	<i>Jul. 2023</i>
Opensource in Pharma <i>Building Production-Quality Shiny Applications; How to Build Shiny Testing Architecture;</i>	<i>Nov. 2022</i>
Neo4j <i>Cypher Fundamentals; Neo4j Fundamentals; Graph Data Modeling Fundamentals</i>	<i>Jul. 2022</i>

RESEARCH PUBLICATIONS

- P.G.Kubendran Amos, **Ramanathan Perumal**, A. Koeppe, Britta Nestler, High-fidelity simulations and data-driven insights on rate-governing phases in duplex and triplex systems during isotropic normal grain growth. *Physical Review Materials*, 6, 113401 (2022). [Link](#)
- P.G.Kubendran Amos, **Ramanathan Perumal**, A. Koeppe, Britta Nestler, Data-driven analysis of grain-growth kinetics in duplex and triplex systems. *arXiv preprint arXiv:2108.02236*, (2021). [Link](#)
- Ramanathan Perumal**, P.G.Kubendran Amos, Michael Selzer, Britta Nestler, Quadrijunctions-stunted grain growth in duplex microstructure: A multiphase-field analysis. *Scripta Materialia*, 182, 16-20 (2020). [Link](#)
- Ramanathan Perumal**, P.G.Kubendran Amos, Michael Selzer, Britta Nestler, Multiphase-field modelling of concurrent grain growth and coarsening in complex multicomponent systems *Journal of Materials Science & Technology*, 45, 215-229 (2020). [Link](#)
- Ramanathan Perumal**, Michael Selzer, Britta Nestler, Concurrent grain growth and coarsening of two-phase microstructures; large scale phase-field study. *Computational Materials Science*, 159, 160-176 (2019). [Link](#)
- Ramanathan Perumal**, P.G.Kubendran Amos, Michael Selzer, Britta Nestler, Phase-field study of the transient phenomena induced by ‘abnormally’ large grains during 2-dimensional isotropic grain growth. *Computational Materials Science*, 147, 227-237 (2018). [Link](#)
- Ramanathan Perumal**, P.G.Kubendran Amos, Michael Selzer, Britta Nestler, Phase-field study on the formation of first-neighbour topological clusters during the isotropic grain growth. *Computational Materials Science*, 140, 209-223 (2017). [Link](#)

AWARDS & ACHIEVEMENTS

- Research Fellowship:** Ministry of the state Baden-Württemberg Fellowship through the initiative “Bundesministerium fuer Wirtschaft und Energie” and “KerSoLife 100”, Germany. (Jul. 2013 - Dec. 2019)
- DAAD – IIT Bilateral Fellowship:** Awarded DAAD (German Academic Exchange Service)-IIT Master Sandwich Program Fellowship for carried out Master thesis in KIT, Karlsruhe, Germany. (Sep. 2012 - Mar. 2013)
- Chess:** Achieved consistent success in college Chess tournaments, securing multiple prizes for outstanding performance, and clinched the first prize in the prestigious Pfizer Emerald Chess Championship 2023.

OPEN SOURCE / POC PROJECTS

- Kaggle Dataset Expert: Developed and Open sourced Mobile App 7K Statistics (Apple iOS app store) dataset in Kaggle (528K views, 63.1K downloads, 1187 upvotes).
- Two Ionic developed mobile apps in Google play store (Quotes in Tamil - Adfree, Rate myMovie).
- Hands-on experience in creating and deploying open source R packages/ datasets.

LANGUAGES

English, German (A1), Tamil

HOBBIES

Chess; Photography; Cooking