Ninad Bhat

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PROFESSIONAL SUMMARY

- Skilled software developer and machine learning engineer with three years of Python development experience and a PhD in Applied Machine Learning for Materials Design.
- Experience working in database management, health software, computational modelling sectors.
- Microsoft Certified Azure Data Scientist, Google Cloud: Architecting with Google Kubernetes Engine

PROFESSIONAL EXPERIENCE

Software Engineer   **Jul 2022 – Mar 2024**
Software Innovation Institute   *Canberra, AU*

- Developed health management applications for patients and doctors using Flutter and Python, in collaboration with Yarrabah Community's Gurriny Health Clinic.
- Developed system architecture for secure storage and transfer health data between legacy Firebird SQL database to Personal Online Data stores (PODs) server.
- Calculated and analysed **seven** community-level health metric distributions, facilitating targeted interventions for high-risk groups, significantly improving patient care strategies.
- Designed and implemented a development workflow guideline and automated testing pipeline using **GitHub Actions** to enhance team productivity and ensuring code reliability.
- **Technologies used**: Python, Flutter, Firebird Database, SQL, GitHub Actions (CI/CD).

Casual Software Engineer   **Nov 2021 – Jun 2022**
Instaclustr by NetApp   *Canberra, AU*

- Developed software for monitoring and management of clusters and data centers using Python and Java.
- Developed a command-line interface (CLI) option to monitor cluster start time and genesis time, resulting in a **50% reduction** in previous workflow of query **PostgreSQL** database directly.
- Implemented a ticketing architecture to track modifications across clusters, data centres, and nodes, improving change management transparency.
- **Technologies used**: Python, Java, PostgreSQL.

INTERNSHIPS AND PROJECTS

Software Developer (HIDA Visiting Researcher)   **Apr 2024 – Jun 2024**
Institute for Materials Data Science and Informatics (IAS-9)   *Aachen, Germany*

- Developed atomID Python package for identification and annotation of defects in crystal structures.
- Optimised defect detection for large dataset (**10 million**) resulting in a **70% reduction** in processing time.
- Designed and created a molecular dynamics data set for robust package testing and model training.
- Created Github Action workflow for automated release and publication of package to PyPI from Github.

Research Scientist Intern   **Nov 2021 – Mar 2022**
Nanocube   *Melbourne, AU*

- Utilised **XGBoost models** to predict material hardness and designed ultra-hard armour materials.
- Conducted ANSYS simulations and validated the strength and effectiveness of newly designed armour.

Junior Machine Learning Engineer   **Aug 2021 – Oct 2021**
Omdena   *Remote*

- Developed **LSTM Recurrent Neural Network** for predicting cardiac arrests using **Tensorflow** and **Keras**.
- Created informative visualizations and presented insights to stakeholders to communicate the results.

Software Engineer   **May 2021 – Aug 2021**
AiiDA, Google Summer of Code 2021   *Remote*
- Developed a REST API plugin for seamless workflow management within the open-source AiiDA project.
- Designed and implemented REST API endpoints for multiple AiiDA entities using **FastAPI** and **Pydantic**.

Software Engineer Intern   **Jun 2017 – Dec 2017**
Monash University   *Melbourne, AU*
- Created the Metastable Pitting Analyser web application, achieving a 97% reduction in analysis time through automated detection of metastable peaks compared to traditional approaches.
- Developed web application using Python and **Plotly-Dash** and hosted it on **Amazon Web Services EC**2.

Open-source Software Contributor   **Sep 2016 – Feb 2017**
Balrog, Mozilla   *Remote*
- Contributed to open-source Balrog update system used by Firefox and other Mozilla products.
- Decreased failure rates by **40%** by implementing A/B testing through usage of Fallback Mapping.
- Reduced time for adding plugin updates by **75%** by improving architecture and reducing complexity.
- Developed GUI for viewing history and scheduling changes using **HTML**, **CSS**, **JavaScript** & **AngularJS**.

EDUCATION

Australian National University   **Jan 2020 – July 2024**
PhD, Interpretable Machine Learning Methods of design of aluminium alloys   *Canberra, AU*
- Designed machine learning models using scikit-learn `and workflows to discover novel aluminium alloys.
- Designed a Generative Adversarial Network (GAN) using **PyTorch** to synthesise new alloy compositions.
- Developed an inverse alloy design workflow using multi-target regression, achieving a **95% improvement** in speed over traditional genetic algorithm-based methods, utilising Scikit-learn, Pandas, and NumPy.
- Utilised unsupervised learning to identify **8 distinct clusters** in an aluminium alloy dataset.
- Improved accuracy by **15%** by developing a partition-based algorithm for mechanical property prediction.
- **Scholarships**: ANU Research Scholarship, APR Intern Scholarship.

Indian Institute of Technology (IIT) Bombay   **Jul 2014 – Jul 2019**
B.Tech + M.Tech, Engineering   *Mumbai, India*
- **Scholarships**: Merit-cum-Means (MCM) scholarship.
- Ranked in the top 0.1% among 1.5 million candidates in the IIT entrance examination.

VOLUNTEERING & TEACHING EXPERIENCE

Diversity, Belonging, Inclusion and Equity Committee, ANU CECC   **2022 – Present**
HDR student representative
Programming for Scientists, Australian National University   **2020 - 2022**
Tutor
Introduction to Programming and Data Structures & Algorithms, IIT Bombay   **2015 – 2016**
Tutor

CERTIFICATIONS, SKILLS & INTERESTS

- **Certifications:** Microsoft Certified Azure Data Scientist Associate, Google Cloud: Architecting with Google Kubernetes Engine, Google Cloud: Infrastructure as Code with Terraform
- **Programming Languages:** Python, C++, SQL, Bash.
- **DevOps Tools:** Docker, Kubernetes, Terraform.
- **Packages/Tools:** PostgreSQL, Firebird, TensorFlow, PyTorch, scikit-learn, Git.
- **Other Interests:** Brazilian Jiu Jitsu (Canberra BJJ Open Silver Medal), Badminton.