Nikhil Nageshwar Inturi

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Data Scientist with 7+ years of experience in Applied Machine Learning, Generative AI, statistical analysis, and Bioinformatics. Skilled in building scalable data models using docker and CI/CD pipelines, managing SQL and NoSQL/document databases such as Elasticsearch, MongoDB, Azure Cosmos DB and Cassandra, bioinformatic data pipelines to generate raw-counts from scRNA-seq, Bulk RNA-seq, ATAC-seq and visium datasets. Expert in Python, R, shell scripting, workflow management tools(Cromwell and Nextflow), data science toolkits, with proficiency in Docker, Kubernetes.

EXPERIENCE:

Center for Advanced Pain Studies, The University of Texas at Dallas, Richardson, Texas

Data Science and Neuroinformatics Intern (Neurosciences Department) Feb 2022 – Present

- Utilized advanced *image classification and segmentation* techniques using Detectron2, YoloV11, FastAI and SAM models to enhance neuron detection in human, mouse, and baboon neuronal images as part of the **Neuron Detection** project. This approach contributed to a 15% improvement in barcode detection accuracy and facilitated the generation of precise neuronal barcode files automatically for the *Visium workflow*.
- Pioneered predictive modeling of jaw movements using rat datasets, decoding complex neural patterns across varied stimulations using various classification and ensemble learning models, including bagging and boosting techniques.
- Developed and optimized scripts for the comprehensive analysis of diverse biological datasets, including Single-cell, **Visium (spatial)**, **ATAC-seq**, and Bulk RNA-seq. This enhancement led to a 60% increase in analytical efficiency, significantly accelerating the identification of *differentially expressed genes* and *biomarkers*.
- Collaborated with cross-functional teams from multiple research labs, from McGill and University of Sydney, to streamline computational pipelines using workflow management tools and containers for improved efficiency.

Aganitha Cognitive Solutions, Hyderabad, India

Full-stack Data Scientist Jun 2022 – Nov 2022

- Designed and executed *clustering models* for the *AAV Capsid Engineering Project* to identify the golden templates, significantly reducing the number of required in-vivo experiments by 99.96%, which led to substantial cost savings.
- Engineered interactive IPython widgets and Panel dashboards for Midstream and Downstream Analysis of AAV Capsid Engineering, significantly improving data visualization and user engagement. Integrated midstream sequencing data into Snowflake DB, enabling efficient tracking of sequences and TM-scores across multiple runs.
- Revamped **Splice-AI** algorithms to accurately detect and analyze novel splice junctions in humans and rodents, which resulted in a 20% increase in overall testing efficiency.
- Developed and implemented advanced algorithms for the **AutoBLAST**, a genome browser, doubling efficiency compared to the Basic Local Alignment Search Tool.

Infosys Ltd, Hyderabad, India

Technology Analyst Sep 2018 – Jun 2022

- Developed and integrated diverse machine learning algorithms using sklearn, LightGBM, CatBoost, H2O, and Keras, significantly expanding the capabilities of the Infosys Data Science and Machine Learning Platform (IDSMLP).
- Developed and implemented 40 database connectors for ICETS-Infosys, integrating SQL databases (MySQL, MSSQL, MariaDB, PostgreSQL, Snowflake, Redshift, Informix, DB2) and NoSQL/document databases (Azure Cosmos, Cassandra, Elasticsearch, MongoDB) with Python, contributing to valuable internal intellectual property.
- Enhanced IDSMLP tool interface with advanced data visualization techniques, incorporating interactive univariate, bivariate, and multivariate charts using Bokeh and Plotly. Implemented **Nginx load balancing** to optimize user interactions and improve complex data pattern comprehension.
- Streamlined deployment processes by Dockerizing all ICETS-Data Science platform applications, reducing deployment times by 75% and significantly boosting operational efficiency.
- Engineered a user-friendly interface for the CFIN tool using Python, enhancing communication and collaboration with the Infosys SAP Team using python(rest-api's) and java script.
- Managed 55 repositories within Documentum across Production, Integration, and Test environments; automated DAR/JAR deployments, improving deployment efficiency 16-fold.

EDUCATION:

The University of Texas at Dallas, *Master's in Business Analytics & Data Science* Jan 2023 - Present

Purdue Global – Simplilearn, *Post Graduate Program in AI and Machine Learning* Oct 2020 - Nov 2021

Ramaiah Institute of Technology, *Bachelor of Engineering in Mechanical Engineering* Aug 2014 - June 2018

PUBLICATIONS:

1. Exploring the Single-Cell Transcriptome Landscape of the Human Dorsal Root Ganglion in Diabetic Peripheral Neuropathy Apr 2024
   Ishwarya Sankaranarayanan, Juliet M Mwirigi, ***Nikhil Nageshwar Inturi****, Diana Tavares-Ferreira, Theodore J Price*
2. Epigenomic landscape of the human dorsal root ganglion: sex differences and transcriptional regulation of nociceptive genes Jul 2024
   Úrzula Franco-Enzástiga, **Nikhil N Inturi**, Keerthana Natarajan, Juliet M Mwirigi, Khadja Mazhar, Johannes C M Schlachetzki, Mark Schumacher, Theodore J Price
3. Persistent changes in nociceptor translatomes govern hyperalgesic priming in mouse models Aug 2024
   *Ishwarya Sankaranarayanan, Moeno Kume, Ayaan Mohammed, Juliet M. Mwirigi****, Nikhil Nageshwar Inturi****, Gordon Munro, K. A. Petersen, Diana Tavares-Ferreira, Theodore J. Price*
4. Deciphering the Molecular Landscape of Human Peripheral Nerves: Implications for Diabetic Peripheral Neuropathy. 2024. *Manuscript in Preparation* Jul 2024
   Diana Tavares Ferreira, Breanna Q Shen, Juliet M Mwirigi, Stephanie Shiers, Ishwarya Sankaranarayanan, Miriam Kotamarti, ***Nikhil N Inturi****, Khadijah Mazhar, Eroboghene E Ubogu, Geneva Thomas, Trapper Lalli, Dane Wukich, Theodore J*
5. Translational control in the spinal cord regulates gene expression and pain hypersensitivity in the chronic phase of neuropathic pain Sep 2024
   Kevin C. Lister, Calvin Wong, Sonali Uttam, Marc Parisien, Patricia Stecum, Nicole Brown, Weihua Cai, Mehdi Hooshmandi, Ning Gu, Mehdi Amiri, Francis Beaudry, Seyed Mehdi Jafarnejad, Diana Tavares-Ferreira, ***Nikhil Nageshwar Inturi****, Khadijah Mazhar, Hien T. Zhao, Bethany Fitzsimmons, Christos G. Gkogkas, Nahum Sonenberg, Theodore J. Price, Luda Diatchenko, Yaser Atlasi10, Jeffrey S. Mogil and Arkady Khoutorsky*
6. Molecular architecture of human dermal sleeping nociceptors Dec 2024
   Jannis Körner, Derek Howard, Hans Jürgen Solinski, Marisol Mancilla Moreno, Natja Haag, Andrea Fiebig, Idil Toklucu, Raya Bott, Ishwarya Sankaranarayanan, Diana Tavares-Ferreira, ***Nikhil N. Inturi****, Anna Maxion, Lisa Ernst, Ingo Kurth, Theodore Price, Martin Schmelz, Barbara Namer, Shreejoy Tripathy, Angelika Lampert*

SKILLS:

Data Analytics: Data Analytics, Data Science, Machine Learning, Natural Language Processing, Deep Learning.
Programming: Python Programming, R Programming, Linux Shell Scripting and Automation, Java, HTML, CSS, Workflow languages (Cromwell and Nextflow) for automation, Database Management: SQL and NoSQL databases, Containerization: Docker and Kubernetes, Documentum Content Server, and SharePoint repository management.
Web server: Tornado with Restful API, Django, Flask and for high-availability nginx load-balancing.
Cloud services: AWS(certified) and Azure(certified)

CERTIFICATIONS:

- Post Graduate Program in AI and Machine Learning Oct 2021
- Microsoft Certified: Azure AI Fundamentals Jul 2021
- Microsoft Certified: Azure Data Fundamentals Jul 2021
- Microsoft Certified: Azure Fundamentals Jun 2021
- Amazon Cloud Computing Practitioner May 2024
- Graduate Certificate in Applied Machine Learning Jun 2024