PRITAM KUMAR PANDA (Ph.D.)

Bioinformatician

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🏠 Publications ⬡ Github 🐦 Twitter ▶ Youtube

👤 PROFILE

- Researcher/computational scientist with a core training in bioinformatics and a PhD in Biomolecular Physics. Working on establishing computational pipelines in bioinformatics and ab-initio quantum chemistry methods.
- Over 6+ years of research experience and an uncanny ability to pay attention to detail in bioinformatics applications; collaborated with many academic professionals and served as a bioinformatics consultant with over 4 multi-national industries.
- Interested in working in a multicultural environment, as a research scientist and taking up the leadership roles.

💼 PROFESSIONAL EXPERIENCE

German Cancer Research Center DKFZ, Bioinformatician | Data Steward   Jul 2023 | Heidelberg, Germany
- Generate a catalogue of available bioinformatics workflows for genomics data in Mainz and Heidelberg.
- Implementation of a catalogue of data available/generated for HI-TRON.
- Coordination of dataflows and bioinformatics workspaces.
- Working on HI-TRON Mainz Data Portal as a central point of the facility and to support sustainable data management.
- Building a data catalogue filled with metadata that gives the scientists an overview of the HI-TRON projects and potentially available data and biosamples in the HI-TRON facility.

Uppsala University, Computational Scientist | Biomolecular Physics   Nov 2018 – Mar 2023 | Uppsala, Sweden
- Initiated, designed, and led sub-projects to develop protocols on **ab-_inito_ quantum** chemistry methods for DNA/Protein **nanopore sequencing**.
- Designed and formulated a **structure-based drug-designing** pipeline to identify potential lead candidates for SARS-CoV-2.
- Developed a **multi-scale modeling** pipeline using **molecular dynamics simulation** on protein, complex, and membrane models and developed GROMACS scripts to efficiently handle supercomputing clusters.
- Established a link between the quantum and biological behavior of **bio-inspired materials** to understand the interface chemistry.
- Awarded **AIMday materials 2020 grant (UU innovation grant) from** ABB Power Grids, **Hitachi**, Sweden
- Served as a **reviewer** of Nature, Nature Protocols, BMC, Frontiers, PlosOne, Elsevier journals, Springer, and MDPI.
- Driven many collaborative projects and authored 5 published research papers resulting in a **20-fold increase in performance**.

Karolinska Institute, Bioinformatics Analyst | Immunoinformatics   Jun 2021 – Mar 2023 | Stockholm, Sweden
- Curate and analyze **complex clinical data**, including but not limited to genomic data, and antibody clones from patient samples, and develop novel **predictive models** using statistical techniques and machine learning to support patient stratification and **biomarker** selection in clinical trials.
- Assisted in developing **Immunoinformatics** pipeline for modeling in-house antibody clones.
- Established pipelines for **antibody profiling** and simulation to understand the **Immunomodulatory effects** in cardiovascular-related disorders.
- Filed a **patent** on clinical vaccine candidate using **multiomics** integration-based molecular/in-silico characterization of COVID-19.
- Designed **exploratory data analysis** pipeline using **machine learning models** for clinical data cohorts.
- Develop and validate the **analysis workflow**, software applications, and **data warehouse** to improve **visualization, integration, and accessibility** of complex **clinical data**.
- Received **IMM Strategic Interdisciplinary Collaboration** grant to carry out multi-omics data analysis.
- Authored 2 manuscripts and received a grant showing a maximum of **20-30% change in performance.**

University of Freiburg, Graduate Scientist | NGS Data Analyst   Sep 2017 – Oct 2018 | Freiburg, Germany
- Developed **whole exome sequencing** (WES) and validation pipeline for clinically **targeted NGS panel** to identify the variants with annotations involved in Myelodysplastic syndromes.
- Designs computing strategy in a **High-Performance Computing** (HPC) environment for algorithm development and optimization; computes infrastructure for processing NGS data (local vs. Amazon cloud, etc.)
- Led a collaborative research project between 2 groups to design an **RNA-seq** pipeline and analyze **gene-expression data.**
- Established a pipeline on **NEBNext Direct clinical cancer** hotspot panel for clinical diagnostic.
- Improved performance in learning & establishing **NGS pipelines** which resulted in a **Nature Medicine** article.
- Assisted in **modeling RNA**, and proteins related to MDS using modeling tools thereby eliminating dependence on licensed software.
- Experience in analyzing **single-cell sequencing** data.

KIIT University, Computational Biologist | Bioinformatics   Jul 2016 – Aug 2017 | Bhubaneswar, India
- Formulated pipelines for **nano-bioinformatics** methods for **metal & covalent-based docking**.
- Developed **metagenomics** pipeline using **nf-core/mag** to elucidate the **microbial landscape** and its role in virulence.
- Established a **chemoinformatics** pipeline to understand the effect of nanoparticle treatment in **zebrafish models**.

🏢 INDUSTRIAL EXPERIENCE

Bioinformatics Consultant, Colgate and Palmolive   Oct 2021 – Nov 2022 | Piscataway-NJ, USA
- Assisted in developing a pipeline **for combinatorial synergy-based drug designing** for **photoaging and hyperpigmentation**.
- Received **Colgate & Palmolive research grant** to perform **computer-aided drug designing (CADD)** studies.

Scientific Advisor, LongHack sponsored by VitaDAO   Jun 2021 – present | Helsinki, Finland
- Involved in **mentoring participants** and **tailoring** the **scientific challenges** required for the **hackathon**.
- Organised **two hackathons on longevity successfully** and help to identify potential customers and networks.

Startup, Nerdalytics   Dec 2021 – Jun 2023 | Uppsala, Sweden
- Initiated a **project management** startup providing **bioinformatics** consultancy to **pharma** industries.
- Adapted **company policies**, **regulations** and **financial** aspects to be able to handle multiple projects.
- **Budgeted, coordinated**, and developed **confidential projects** with pharma companies focusing on scope, cost, and key deliverables.
- **Prioritized** and **strategized** for necessary change requirements, further communicated to clients and key stakeholders.
- Discovered ways for further **automation** and coordinated their **implementation**.

🔁 VOLUNTEER EXPERIENCE

General Clinical Consultant, Breath of Health Ltd. ☒   Nov 2021 – present | Rehovot, Israel
- Working closely with **clinicians** to write **grant proposals** and provide support for **NGS analysis** & improving **clinical ML** models

Board Advisor, AnalysisMode & FIBO Labs   Nov 2021 – present | Helsinki, Finland
- Providing my expertise on **AI-based bioprocess optimization** to reduce the cost of manufacturing **personalized medicines.**
- Working with **AI** experts to build a **pipeline for clinical trials** and **observational research**.

Scientific Advisor, Inflanova AB   Sep 2021 – present | Stockholm, Sweden
- Assisting in finding **potential clients** from industrial sectors for **vaccine formulation & development**.
- **Risk assessment:** coordinated response actions with potential clients to identify and manage possible risks.

💻 COMPUTATIONAL TOOLS

Next Generation Sequencing, (bcbio-nextgen, ANNOVAR, GATK, Gemini, varscan, CLC workbench, IGV, UMI tools), **RNA-seq & scRNAseq (** DESeq2, STAR, Seurat, 10X Genomics Cell Ranger), ***Drug Designing* (**Autodock suite, Vina, GOLD, LigandScout, IGemDock, MGL Tools, ArgusLab, ChemSketch, Marvin Sketch, LigPlot+, Smina, Meeko), ***Molecular Modeling* (** AlphaFold2, Itasser, Phyre, Swiss Model, RaptorX, Coot), **RNA Modelling** (RNA Fold, RNA Composer), ***Molecular Dynamics* (**GROMACS, LAMMPS, NAMD, CHARMM-GUI),*Visualization* (ChimeraX, Discovery Studio Visualizer, Maestro, Biorender, Pymol), ***Pathway Analysis*** (Cytoscape, STRING, STITCH, BioGrid, GeneMania, Elsevier Pathway Studio, GeneNetwork, DAVID), ***Statistical Programming*** (Integrative multimodal analysis, ANOVA, Multivariate analysis, PCA, Origin, Xmgrace, Gnuplot), ***Quantum chemistry methods*** (VASP, Siesta, wxDragon, ASE, Avogadro), ***Technical & Operating Systems*** (Microsoft Office, MacOS, Windows 10, CentOS, Fedora),*Supercomputing Clusters (*Tetralith, SNIC, HPC environments), ***Scripting languages:*** (Bash/Python/R)

⚙ PROJECT MANAGEMENT AND LEADERSHIP SKILLS

- **Initiated and organized** lectures, workshops, and **team-building** activities and served two times as a **chairperson** at the e-Materials Research Society conference in Europe.
- **Taught** graduate courses in Bioinformatics & Systems Biology and **consistently** achieved the **highest reviews** from both students and fellow faculty.
- **Collaborated** with more than **20 different countries'** researchers, scientists, and industry professionals to carry out my research works.
- Contribute to the **planning and execution** of collaborative projects with leading academic and commercial research groups worldwide.
- **Mentored, managed,** and drove a team of 160 researchers from 10 different countries to organize a **longevity hackathon.**
- Maintained **partnerships and fostered collaborative** relationships across global academic and industrial organizations for various scientific projects.
- Initiated a **startup** with strong **initiative, ownership, and accountability** for innovative projects.
- Successfully **organized** the **EURO-DBA** conference held in Freiburg, Germany.
- **Coaching** and providing hands-on training on **YouTube** related to computer-aided drug designing, quantum chemistry methods, molecular dynamics, and bioinformatics lectures.
- Work **cross-functionally** with other industries to realize new business opportunities.

🎓 EDUCATION

Ph.D. candidate | Biomolecular Physics, Uppsala University   Nov 2018 – Mar 2023 | Uppsala, Sweden

Master of Technology | Bioinformatics, D Y Patil University   Jul 2014 – Jul 2016 | Mumbai, India

Masters of Science | Bioinformatics, Utkal University   Jul 2012 – May 2014 | Bhubaneswar, India

Bachelors of Science | Bioinformatics, Utkal University   Jul 2009 – May 2012 | Bhubaneswar, India

🎓 CORE COMPETANCIES

- Bioinformatics
- Molecular Dynamics Simulations/Biophysics
- Atomistic Modeling & Ab-initio quantum calculations
- Next-Generation Sequencing Data Analysis
- WES/RNASeq/scRNA-seq
- Data Visulaization
- Chemoinformatics
- Biological Pathway & Network analysis
- Multiomics
- ML in Drug Discovery
- Statistical Programming (R/Python/Bash)
- Data science

🌐 LANGUAGES & REFERENCES

English (Professional Proficiency) | **Hindi** (Bilingual) | **Odia** (Native) | **References available on request.**