

Paarth Parekh

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PROFESSIONAL SUMMARY

Innovative Bioinformatics Scientist with 4+ years of experience in multi-omics data analysis, disease modeling, and computational research. Proven expertise in integrating patient-derived clinical data to characterize disease phenotypes and endotypes, supporting target discovery and drug development. Demonstrated success in biomarker identification and therapeutic development, with strong collaboration and leadership skills across cross-functional teams.

EXPERIENCE

Javelin Biotech | Woburn, MA

Bioinformatics & Computational Modeler II

Jun 21 – Present

- Developed a novel transcriptomic metric integrating clinical and in vitro data to enable precise disease phenotyping and endotyping, directly informing model development for therapeutic research.
- Conducted integrative multi-omics analyses to characterize disease states and identify novel biomarkers for target discovery, with a focus on real-world clinical correlations.
- Developed machine learning approaches and ODE-based mechanistic models to simulate drug kinetics in Liver and multi-organ Chips, optimizing IVIVC and IVIVE outcomes for preclinical programs.
- Conducted comprehensive disease characterization studies using public clinical datasets, refining MPS chip models to capture critical disease phenotypes and stages.
- Integrated multi-omics datasets to detect actionable biomarkers, accelerating target validation & therapeutic development.
- Collaborated with external teams to develop a client-facing software product that analyzes Liver Chip Data using predictive algorithms for hepatic metabolism, streamlining data analysis and decision-making processes.
- Developed Genome-Scale Metabolic Models for metabolic diseases to facilitate new targets discovery and understand a drug's mechanism of action.
- Developed comprehensive experimental plans, in collaborative efforts with lab scientists, for diverse research projects.
- Coordinated cross-functional teams of software engineers, data scientists, and laboratory researchers to align deliverables with project goals and timelines.
- Presented technical insights and project updates to executive stakeholders and clients, effectively translating complex computational findings into actionable business solutions.
- Co-designed and developed a PostgreSQL-based database to optimize drug data retrieval for data analysis.
- Supported grant-seeking efforts by conducting literature reviews, contributing to research proposals, and collaborating with different CROs to optimize grant application processes, budgets, and timelines.

GlaxoSmithKline | Rockville, Maryland

Bioinformatics Scientist, Pre-Clinical Vaccines Lab

Jun 20 – Dec 20

- Analyzed long-read NGS data to investigate mechanisms of action in a self-amplifying mRNA vaccine platform, identifying immunogenic signatures.
- Implemented advanced statistical modeling to highlight immune-response biomarkers, directly informing target discovery and the design of vaccine formulations.
- Partnered with immunologists, molecular biologists, and biostatisticians to interpret large-scale datasets, effectively merging computational insights with experimental validation.
- Enhanced reproducibility through rigorous data visualization and spike-in controls (ERCC standards), resulting in high-fidelity gene expression profiles for downstream functional analyses.

Georgia Institute of Technology | Atlanta, Georgia

Graduate Research Assistant, Storici Lab

Aug 19 – May 20

- Developed and optimized an ETL pipeline to analyze the ribonucleotide incorporation in *Saccharomyces cerevisiae* DNA, enabling comprehensive downstream analysis.
 - Built a machine learning model leveraging the transformed dataset to predict the firing times of autonomously replicating sites (ARS), providing novel insights into DNA replication processes.
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TECHNICAL SKILLS

- **Programming & Tools:** Python, R, Bash, SQL, AWS, Git, Docker, NextFlow.
- **Data Analysis & Modeling:** Multi-omics integration, disease phenotyping/endotyping, RNA-seq, proteomics, systems biology, ODE-based PK/PD modeling, GEMs, machine learning frameworks, gene prediction, Ribo-seq, ChIP-seq, variant calling, GSEA
- **Web & Software Development:** Dash, R-Shiny, HTML5, CSS, React.js, PostgreSQL
- **Project Management:** Asana, JIRA, Scrum, stakeholder communication
- **Operating Systems:** Linux, Unix, Windows

EDUCATION

Georgia Institute of Technology, Atlanta, GA

M.S. in Bioinformatics (GPA: 4.0/4.0)

University of Mumbai, Mumbai, India

B.E. in Biomedical Engineering

SELECTED PUBLICATIONS

- Sherfey, J, Rajan, S. A. P., Nichols, L., **Parekh, P.**, Cirit, M. A novel multi-organ tissue chip for Clinical pharmacokinetics applications. * (In-works)
- **Parekh P**, Sherfey J, Alaybeyoglu B, Cirit M. Pathway-Based Similarity Measurement to Quantify Transcriptomics Similarity Between Human Tissues and Preclinical Models. Clin Pharmacol Ther. October 8, 2024.
- Ohri S, **Parekh P**, Nichols L, Rajan SAP, Cirit M. Utilization of a Human Liver Tissue Chip for Drug-Metabolizing Enzyme Induction Studies of Perpetrator and Victim Drugs. Drug Metab Dispos. September 30, 2024.
- Rajan, S. A. P., Sherfey, J., Ohri, S., Nichols, L., **Parekh, P.**, Cirit, M. A novel Milli-fluidic liver tissue chip with continuous recirculation for predictive pharmacokinetics applications AAPS J. 2023;25(6):102. Oct 27, 2023.