Sangita Ganesh

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PROFESSIONAL EXPERIENCE

Production Bioinformatics Lead – MyOme, USA **May 2024 - Current**

- Lead the Engineering Bioinformatics team in the development of bioinformatics pipelines for the analysis of NGS data for clinical applications, manage the deployment, and maintain performance of analytical pipelines
- Led the development of multiple analytical pipelines to support the launch of multiple proactive screening and diagnostic products
- Collaborate with cross functional teams on full-stack development of analysis and reporting infrastructure

Independent Bioinformatics Technical Consultant, USA **Aug 2023 - May 2024**

- Delivered advanced bioinformatics expertise and support to a life science startup, empowering them to scale bioinformatics
- solutions, and harness the potential of genomics and NGS workflows
- Developed and implemented genome mining algorithms on cloud ecosystems, unlocking the identification of high-value
- proteins, and facilitating the establishment of large-scale partnerships

Computational Scientist III – Myriad Genetics, USA **Nov 2021 – Apr 2024**

- Led the development of numerous standalone tools and algorithms, including for the detection of copy number variants in cancer genomes used for tumor profiling, utilizing a statistical model implemented natively in Python and deployed to production
- Efficiently developed analytical pipelines in WDL for new assays through strong collaboration with cross-functional teams of molecular scientists and software engineers for molecular diagnostic assays for Women's Health applications
- Consistently enhanced existing analytical pipelines and codebases by actively contributing to the development of new features

Bioinformatics Scientist I/II/III – Zymergen, USA **Jan 2018 – Oct 2021**

- Led the establishment of Bioinformatics capability in the Metagenomics functional area and currently managing a team of three bioinformaticists, as Technical Program Lead
- Spearheaded development of tools and algorithms for genomics-guided discovery of Natural Products, Proteins, and Enzymes for Zymergen's product development pipeline for diverse synbio applications in Agriculture, Pharma, and Consumer products, employing software engineering principles for reproducible analysis code
- Inventor on three filed patents on strategies for Natural Products and Protein discovery from metagenomes
- Developed detailed technical plans and led multiple product discovery programs as Technical Project Lead, managing project timelines, deliverables, and maintaining communications with clients and stakeholders

Senior Research Associate – Radiant Genomics, USA **June 2016 – Dec 2018**

- Developed workflows and analytical pipelines for rapid screening of environmental metagenomic libraries for molecules and pathways of agricultural interest
- Developed and implemented next generation sequencing experiments, and optimized assays
- Bioinformatic analyses of genomic and metagenomic next generation sequencing data, sequence data management
- Bioinformatics liaison collaborating with molecular biologists to communicate results, and plan and develop sequencing experiments

Volunteer Consultant – Community Consulting Teams, Atlanta, USA **Feb 2016 – June 2016**

- Worked with a team of six to develop and implement a multi-sector communication strategy for a local non-profit organization aimed at promoting healthy lifestyle choices to school-going children
- Identified and recommended strategies to leverage social media as an effective marketing tool along with tools to measure communication effectiveness

LEADERSHIP EXPERIENCE

Treasurer, Executive Board Member, Georgia Tech PhD2Consulting Club **Oct 2015 – Aug 2016**

- Spearheaded the initiation of workshops and training programs for skills development for Ph.D students seeking non-traditional career opportunities, established initiatives for fund-raising, member recruitment and participation
- Planned and managed the club budget of over $5000

Grad Group Leader, Grad Groups Program, Office of Graduate Studies **Sept 2015 – Dec 2015**

- Advised and supported a group of 10 incoming graduate students to foster a quality student experience
- Led discussions on work-life balance, career development, time management and stress management

Teaching Assistant Training Fellow, **Center for the Enhancement of Teaching and Learning (CETL)** **May 2012 – Aug 2015**

- Coordinated and led teaching orientation sessions for over 200 new TAs and mentored junior Teaching Assistant Fellows
- Designed and facilitated instructional training sessions and workshops on effective teaching and communication strategies

SKILLS

- **Computational:** Python, Django, UNIX/Bash, Nextflow, WDL, CWL for workflow orchestration, IPython/JupyterLab, SciPy**,** NumPy, Pandas, scikit-learn, SQL, Docker, Git, AWS, Data visualization, NGS sequence data analysis (genome assembly, annotation, sequence alignment), Prediction and analysis of structural variants in cancer genomes, Germline/somatic variant calling, Metagenomic data analysis (metagenome mining, binning, taxonomic analysis), Natural product prediction and analysis
- **Biology/Wet Lab:** Illumina sequencing library prep, Illumina sequencing, DNA extraction, Molecular cloning, Protein expression, Protein purification
- **Project Management:** Project Scoping, Developing technical design plans, Project roadmap development, Agile project management (JIRA)

PUBLICATIONS

Patents:

- Non-Invasive Prenatal Sample Preparation and Related Methods and Uses, *U.S. Patent Appl. 18/095,386 (pending)* **2023**
- Metagenomic Library and Natural Product Discovery, *U.S. Patent 11,189,362* **2021**
- Methods to Identify Novel Insecticidal Proteins from Complex Metagenomic Microbial Samples, *U.S. Patent Appl. 18/022,848 (pending)* **2020**
- Methods for Enzymatic and Microbial Degradation of Polyethylene, *U.S. Patent Application (pending)* **2020**

Journal Publications:

- Liu, OW, Akers, S, Alvarez G, Brown S, Cai W, Charlop-Powers Z, Crispell K, Goh E, Hwang WW, Eyles TH, **Ganesh S**, et al., Precision Discovery of Novel Inhibitors of Human Cancer Target HsMetAP1 from Vast Unexplored Metagenomic Diversity. bioRxiv 2022.06.11.495772, **2022**
- **Ganesh S**, Bertagnolli AD, Bristow LA, Padilla CC, Blackwood N, Aldunate M, Bourbonnais A, Altabet MA, Malmstrom RR, Woyke T, Ulloa O, Konstantinidis KT, Thamdrup B, Stewart FJ, Single cell genomic and transcriptomic evidence for the use of alternative nitrogen substrates by anammox bacteria. *The ISME Journal*. 12: 2706-2722, **2018**
- Seston SL, Beinart RA, Sarode N, Shockey AC, Ranjan P, **Ganesh S**, Girguis PR, Stewart FJ, Metatranscriptional Response of Chemoautotrophic *Ifremeria nautilei* Endosymbionts to Differing Sulfur Regimes. *Frontiers in Microbiology*. 7:1074, **2016**
- **Ganesh S**, Bristow LA, Larsen M, Sarode N, Thamdrup B, Stewart FJ, Size-fraction partitioning of community gene transcription and rates of nitrogen metabolism in a marine oxygen minimum zone. *The ISME Journal*. 9: 2682-2696, **2015**
- Padilla C*, **Ganesh S***, Gantt S, Huhman A, Parris DJ, Sarode N, Stewart FJ, Standard filtration practices significantly distort planktonic microbial diversity estimates. (*Equal contribution) *Frontiers in Microbiology*. 6:547, **2015**
- Glass JB, Kretz CB, **Ganesh S**, Ranjan P, Seston SL, Buck KN, Landing WM, Morton PL, Moffett JW, Giovannoni SJ, Vergin KL and Stewart FJ, Meta-omic signatures of microbial metal and nitrogen cycling in marine oxygen minimum zones. *Frontiers in Microbiology*. 6:998, **2015**
- **Ganesh S**, Parris DJ, DeLong EF, Stewart FJ, Metagenomic analysis of size-fractionated picoplankton in a marine oxygen minimum zone. *The ISME Journal*. 8: 187-211, **2014**
- Parris DJ, **Ganesh S**, Edgcomb V, DeLong EF, Stewart FJ, Microbial eukaryote diversity in the marine oxygen minimum zone off northern Chile. *Frontiers in Microbiology*. 5:543, **2014**

Refereed Book Chapters:

- Sarode N, Parris DJ, **Ganesh S**, Seston SL, Stewart FJ, Generation and analysis of microbial metatranscriptomes. *In Yates M, Nakatsu C, Miller R, Pillai S (ed) Manual of Environmental Microbiology*, Fourth Edition. ASM Press, Washington, DC, **2015**

SCIENTIFIC OUTREACH

- **Journal Reviewer -** for PeerJ and STAR protocols **Ongoing**
- **Invited Speaker** - Invited to speak about scientific research in industry as an early career scientist, with post-doctoral scientists at UC Davis Department of Ecology and Evolution **2021**
- **Invited Panelist –** Invited to speak about careers in Computational Biology with University of California, Berkeley, students as part of Berkeley Connect **2018**
- **Reviewer –** for President's Undergraduate Research Award (PURA) proposals, Georgia Institute of Technology **2015–2016**
- **Steering Committee Member, Summer Workshop in Marine Science -** Developed and organized a three-day workshop on teaching Marine Science for middle and high school teachers in Georgia, Georgia Institute of Technology **2015**
- **Judge -** for Research Presentations at the Undergraduate Research Spring Symposium, Georgia Institute of Technology **2015**

EDUCATION

Georgia Institute of Technology, USA - Ph.D. Biology (Advisor: Dr. Frank J Stewart) **Dec 2016**

- **Research Expertise:** Metagenomics, Molecular Biology, Genomics, Bioinformatics, Microbiology and Microbial Ecology, Data Analytics
- **Thesis:** Environmental Niche Partitioning of Microbial Community Genomic Diversity, Gene Expression, and Metabolism in Marine Oxygen Minimum Zones

SASTRA University, India - **Bachelor of Technology, Biotechnology** **May 2010**

- Graduated with honors - **First Class with Distinction**
- **Dean's List Award for Scholastic Achievement**, awarded to the top 2% of students in the Class of Biotechnology 2010, SASTRA University (2007, 2008)