ARCHANA JEEVA SRINIVAS

PROFESSIONAL SUMMARY

I am a trained soil microbial ecologist experienced in studying the biogeography of different ecosystems. I have experience in conducting soil surveys, soil field work, collecting soil data, conducting soil data analysis, studying wetland environments, and studying soil and water biogeochemistry. I specialize in soil microbiology, and I have a certification in wetland delineation. I possess a degree in Biotechnology, and I am well versed in microbiological culturing techniques, nucleic acid isolation -DNA and RNA, quantitative polymerase chain reaction (qPCR) - DNA amplification, RT-PCR, DNA sequencing, producing metagenomic data, metagenomic data analysis, oligopeptide isolation and purification. I have also mentored and taught biology and molecular biology to undergraduate students, and I have experience in teaching high school and college level courses.

EDUCATION

- **Ph.D. in Ecology** **Aug. 2010 – Dec. 2016**
  Joint Doctoral Program, San Diego State University and UC Davis, CA
  Dissertation Title: "The Role of Siderophores in Iron Reduction in Arctic Tundra Soils"
  Committee: Prof. David Lipson (SDSU), Prof. Elizabeth Dinsdale (SDSU), Prof. William Horwath (UC Davis)
  Relevant Coursework: Principles of Ecology, Soil Microbiology, Univariate statistical methods, Soil Genesis, and Morphology, Ecological Metagenomics, Soil Chemistry, Restoration Ecology.

- **Bachelors (B.Tech)** **Aug. 2005 – Jun. 2009**
  Biotechnology, SRM University, Chennai, India
  Relevant Coursework: Microbiology, Molecular and cell biology, Genetic Engineering, Biochemistry, Biophysics, Bioinformatics, Enzyme technology, Plant biotechnology, and Industrial biotechnology.
  Undergraduate dissertation title: Effect of Trimetazidine on Antioxidant Status and Development of Atherosclerosis in Rats on an Atherogenic High fat diet.

- **Bachelors (B.Tech)** **Sept. 2008 – Dec. 2008**
  Study Abroad Program Participant, UC Davis, USA
  Relevant Coursework: General Ecology, Introduction to Environmental Toxicology, Introduction to Evolution

WORK EXPERIENCE

- **Science Teacher and Mentor** **Aug. 2023 – Aug. 2024**
  Fusion Academy, Southlake, TX
  Full-time Science Teacher at Fusion Academy, Southlake TX. Currently teaching High School Biology, High School Physics, High School Chemistry, Honors Chemistry, AP Biology, AP Environmental Science, Forensic Science.

- **Adjunct Laboratory Instructor of Environmental Science (BIOL 1132)** **Aug.2023 – Dec.2023**
  UNT- Frisco, Inspire Park
  Part-time laboratory instructor for Environmental Science at University of North Texas, Frisco -Inspire Park. Soil science and Wetland studies specialist

- **Biology Tutor** **Jan.2022- Present**
  Varsity Tutors, LLC
  Freelance tutor with Varsity Tutors- teaching AP Biology, Honors and High School Biology to students

- **Postdoctoral Research Fellow** **Oct. 2016 – Sept. 2017**
  California State University, Northridge, CA
  Undergraduate mentorship duties in the laboratory of Prof. Rachel Mackelprang

- **Teaching Assistant** **Jan. 2011 – May 2016**

Department of Biology, San Diego State University, CA
Taught Biostatistics Lab (BIOL 215) and General Biology (BIOL 100L). Tutored Molecular Biology.

TECHNICAL SKILLS

- Analysis of biogeography and ecological health of threatened environments (Arctic Biome and Philippine coastal areas)
- Wetland delineation
- Soil data collection and Analysis
- Soil survey - Soil Classification and Taxonomy
- Teaching and mentoring undergraduate and high school students
- Microbial culturing and Molecular Biology Laboratory techniques
- Nucleic acid amplification – qPCR, RT- PCR, Recombinant DNA techniques
- Metagenomic DNA Sequencing, assembly, and analysis – using IDBA -UD assembler, MetaBAT and MG RAST
- Protein purification, SDS PAGE
- DNA sequencing via pyrosequencing and library preparation (Roche 454 sequencer and Illumina MiSeq)
- Post-spectrometry (LC-MS) analysis of bacterial oligopeptides, gas chromatography (GC)
- MS Office (Word, Excel, Power point, etc) and Google Suite
- Statistical software: SYSTAT, R statistical language programming

RESEARCH EXPERIENCE

- **Volunteer research associate** **Jan. 2020 – Sep. 2020**
  UC Berkeley, CA
  Analysis of environmental data using an autonomous surface vehicle (ASV) to monitor marine health in the coastal waters of the island of Boracay in the Philippine archipelago.

- **Postdoctoral Research Fellow** **Oct. 2016 – Sept. 2017**
  California State University, Northridge, CA
  Anaerobic microbial culturing and metagenomic analysis of data obtained from Pleistocene aged permafrost soils, Bioinformatic analyses of the permafrost metagenomes by binning into draft genomes using IDBA -UD assembler and MetaBAT - software for creating draft genomes from metagenomic sequences, undergraduate mentorship duties in the laboratory of Prof. Rachel Mackelprang.

- **Graduate Student Researcher** **Sept. 2010 – Oct. 2016**
  Department of Biology (Ecology), San Diego State University, CA
  Dissertation Research: The Role of Siderophores in Iron Reduction in Arctic Tundra Soils
  Performed metagenomic sequencing of soil DNA from Arctic Tundra soil samples (Barrow, AK), performed bioinformatic analysis of metagenomic sequences for dissimilatory iron reduction and siderophore production, analyzed metagenomic data using MG RAST metagenome annotation pipeline, designed and executed experiments involving siderophore amendment to Arctic soil cores, siderophore isolation and chemical analysis using LC-MS, Culturing and 16SrRNA taxonomic analysis of bacterial isolates, qPCR and DNA quantification, Roche 454 pyrosequencing, (Nanodrop, Pico green, etc)

- **Field experimental researcher** **June 2011- July 2013**
  Arctic Coastal Plain, Barrow, AK, USA
  Performed ecosystem manipulation experiment by experimental amendment of siderophore-like compounds in active layer soil transects in High Arctic environments in Barrow, AK; measured soil anaerobic respiratory response to experiment, measured soil variables in field– Soil pH, Oxidation reduction potential (ORP) with portable sampled soil cores at different sites using SIPRE corer and sampled soil pore-water from different sites.

- **Graduate Student Researcher** **Sept. 2011 – Jun. 2012**
  Department of Land, Air and Water resources, UC Davis, CA, USA
  Optimized soil RNA extraction protocol for measuring longevity of stored RNA, Performed PCR, soil RNA extraction and quantification

- **Research Associate** **Oct. 2009 – Mar. 2010**
  ARMATS BIOTEK Training and Research Institute, Chennai, India
  Conducted studies on screening, production, optimization, and partial purification of the enzyme laccase using SDS PAGE and LC techniques from the white rot fungus *Ganoderma lucidum*

- **Undergraduate research** **Sept.2008 – Dec.2008**
  UC Davis, CA, USA -Semester Abroad Program
  Biodegradation of Methyl Tertiary-Butyl Ether (MTBE) by Methylibium PetroleiphliumPM1

CERTIFICATION

- **Wetland Delineation and Corps Permits** **June 2021**
  Whitenton Group Environmental Consultants, Houston, TX

PRESENTATIONS

- **A.J. Srinivas**, A. Thongsarn, R. Mackelprang, "Microbial Survival Strategies in Pleistocene-aged Permafrost Soil," ABSCICON 2017, Mesa convention center, Mesa, Arizona, Apr. 2017.
- **A.J. Srinivas**, E. A. Dinsdale, D. A. Lipson, "The genetic potential for Siderophore-mediated Dissimilatory Iron Reduction in Arctic Soil Microbial Communities," 7th Annual Argonne National Laboratory Soil Metagenomics Meeting, Chicago, IL, Oct. 2015.
- **A.J. Srinivas**, E. A. Dinsdale, D. A. Lipson, "Role of Siderophores in Dissimilatory Iron reduction in Arctic Soils – an Ecosystem analysis," AGU Fall Meeting, San Francisco, CA, Dec. 2014.
- **A.J. Srinivas,** E. A. Dinsdale, D. A. Lipson, "Role of Siderophores in Dissimilatory Iron reduction in Arctic soils," 114th General meeting of the American Society for Microbiology, Boston, MA, May 2014.
- **A.J. Srinivas**, E. A. Dinsdale, D. A. Lipson, "Identification of Genes involved in Iron reduction along depth in anaerobic arctic soils," 3rd Annual Argonne Soil Metagenomics Workshop, Bloomingdale, Illinois, Oct. 2011.

PUBLICATIONS:

- Leewis, M. C., Berlemont, R., Podgorski, D. C., **Srinivas, A**., Zito, P., Spencer, R. G., ... & Mackelprang, R. (2020). Life at the Frozen Limit: Microbial Carbon Metabolism Across a Late Pleistocene Permafrost Chronosequence. Frontiers in microbiology, 11, 1753.
- D. A. Lipson, J. M. Haggerty, **A.J. Srinivas**, T. K. Raab, S. Sathe, E. A. Dinsdale, "Metagenomic insights into anaerobic metabolism along an arctic peat soil profile," PloS one, Vol. 8, No. 5, (2013):e64659.
- **A.J. Srinivas**, E. A. Dinsdale, D. A. Lipson, "The Response of Alaskan Wet Sedge Tundra Soil to Siderophore and Chelator Amendment," In preparation, 2023.

HONORS/AWARDS:

- Awarded Terragenome sponsored Travel award to attend 6th Argonne Soil Metagenomics meeting (2015)
- Jordan D. Covin memorial scholarship from the Graduate Group of Ecology of SDSU (2014-2015)
- American Society for Microbiology (ASM) travel grants award (2014)