

Projects in Computational Biology and Evolution at UC Merced, California

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I am looking for students with programming experience who want to do their “examensarbete” in computational biology, bioinformatics or biostatistics of RNA, proteins and genomes.

Our lab researches the structure, function and evolution of the proteins and RNAs that mediate translation and transcription, and studies how these coevolve with genomes. We currently have a very special focus on using machine learning techniques to infer tRNA-protein interactions and mining these relationships to resolve deep phylogenetic roots of the Tree of Life.

Some suggestions for projects:

- Prediction of tRNA-protein interactions in metazoan genomes
- Promoter prediction and analysis in archaeal and bacterial genomes
- Analysis of duplicated tRNA genes in bacterial genomes (in collaboration with Dan Andersson)
- New algorithms for RNA gene-finding and alignment
- tRNA-amino-acyl synthetase interactions
- Characterization of novel RNAs in bacterial genomes
- Evolution of tRNAs in Yeast, Drosophila, or Mammalian genomes

I am also open to working with students who have their own project ideas for bioinformatics that align with our interests.

Between 2004 and 2008, I was a Foass/Docent at the Linnaeus Centre for Bioinformatics at Uppsala University/SLU, where I supervised four exjobb students in successful projects, three of which yielded credited publications for them. I am especially interested in working with Swedish students from Molecular Biotechnology and Bioinformatics programs.

UC Merced is the newest campus in the University of California system, and the first American research university to be built in the 21st century. It is located in California's San Joaquin Valley, between the coast and the Sierra Nevada. We are two hours southeast of San Francisco, but even better, 90 minutes west of Yosemite National Park! Merced has around 80,000 inhabitants, but feels smaller. If you come here, you will appreciate the low cost of living, the ease of making friends and connecting with faculty at a small but world-class university, and most of all the proximity to Yosemite and other spectacular nature experiences. Since our summers are unbelievably hot, I would recommend coming here in the fall/winter/ spring. The visa process, which I will help with and pay for, takes about four months.

Bring a friend! My wife, Assistant Professor Carolin Frank, is a Swedish alumna of the Molecular Biotechnology and Molecular Evolution Doctoral program in Molecular Evolution at Uppsala University. She is also looking for project students in Microbial Genomics and Bioinformatics, please see <http://granada.ucmerced.edu/~cfrank/Home.html>

