Postdoctoral Research Position in Plasma Modeling, Simulation, and Uncertainty Quantification

The Gorodetsky group is recruiting multiple, immediately available, postdoctoral research positions focused on high-fidelity simulation and scalable algorithm development for uncertainty quantification, and reduced-order/data-driven modeling in plasma modeling.

Research focus

These positions offer unique opportunities to engage in cutting-edge cross-discipline research areas, including:
- Solver development for large-scale GPU/CPU architectures, with access to many of the latest GPUs.
- Simulation of electric propulsion systems, and software/algorithm modifications to enable the simulation of multiple propellants
- Tensor decomposition methods with a focus on both compression of large-scale data as well as low-rank solvers
- Reduced order modeling
- Multi-fidelity modeling and uncertainty quantification
- Bayesian inference and data assimilation, particularly in dynamical systems.

Responsibilities

The chosen candidate will support two projects that develop and deploy plasma simulations with quantified uncertainty.
1. The first project investigates alternative propellants for use in space-based electric propulsion systems.
2. The second project investigates the fusion of Bayesian approaches and reduced order modeling techniques for accelerating reliable data-driven learning of closures in plasma fluid models.

Qualifications

Ideal candidates will have strong experience in high performance computing and simulation surrounding plasma systems or of other transport problems. Additional expertise in scientific machine learning, uncertainty quantification, high-performance computing, or statistical inference is a plus, but not required. However, a desire to learn these approaches is necessary. Applicants with a Ph.D. in any relevant field are welcome to apply.

Successful applicants will have the opportunity to closely collaborate with interdisciplinary computational and data science programs across our campus. You will engage directly with the Michigan Institute for Computational Discovery and Engineering (MICDE) and the Michigan Institute for Data & AI in Society (MIDAS). Additionally, candidates interested in the MICDE Research Scholars Program are encouraged to indicate this in their application.

Application Process

To apply, please send any questions or your CV and a 1-page research statement to goroda@umich.edu with the subject line "Postdoc Application." Please also include a couple of references that I can contact.

We look forward to receiving your application and potentially welcoming you to our research team.