Post-Doc Opening
Virginia Tech/U.S. Naval Observatory

Virginia Tech (VT), in partnership with the U.S. Naval Observatory (USNO), is looking for a post-doc to work at the USNO on a project entitled "Data Assimilation for Earth Orientation Parameters' Estimation and Prediction". The work will involve the development and implementation of advanced Kalman filtering and other data fusion techniques. The USNO's Earth Orientation Department Parameter Combination and Prediction Division uses data gathered from a variety of internal and external sources, among them the International GPS Service (IGS), Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR), and Atmospheric Angular Momentum (AAM). The project's goal is to update and improve legacy algorithms by incorporating advanced estimation techniques. Another thrust will be to improve the generation and use of an in-house USNO data product called UTGPS. UTGPS provides a UT1-like estimate based on GPS orbit modeling and orbit right-ascension prediction errors.

The project will produce an updated system that accurately generates Earth Orientation Parameters that will be published on a regular basis as a service to the international astrodynamics and geodetic communities.

The qualified candidate is required to have:

a. A Ph.D. in one of the following physical science or applied physical science fields: geodesy, geophysics, physics, applied mathematics, computer science, aerospace engineering, electrical engineering, mechanical engineering, or a closely related field. In addition, the curriculum and research required in obtaining one or more of the applicant's graduate degrees should have required the use of optimal estimation or related data assimilation techniques.
b. Experience using a variety of numerical techniques, such as Kalman filtering, H_infinity filtering, batch filtering, or similar filtering to solve estimation and prediction problems.
c. Ability to use MATLAB or other equivalent packages to employ numerical techniques to combine and predict based on disparate and asymmetric data inputs.
d. Ability to develop and write scripts/software to process and analyze GNSS orbit data in commonly used programming languages (perl, python, etc.) within the Linux operating environment.
e. Ability to write standard operating procedures and diagnostic manuals for the software/scripts and procedures developed in support of research activity.
f. Ability to obtain CAC card or alternative token (which provides access to DoD/DoN computer networks) after 6 weeks from start of task order.
g. Ability to obtain a Secret Clearance within one year of the start of the task, if required by the EO Department Head.
h. US citizenship.
i. The qualifications of labor category Research Scientist IV.

Interested applicants should contact Prof. Mark L. Psiaki of Virginia Tech, e-mail: mlpsiaki@vt.edu. (If you are unable to contact Prof Mark Psiaki, please try Mr. Nick Stamatakos nicholas.g.stamatakos.civ@mail.mil or 202-762-1518.)