Srinath Vadlamani Ph.D.	Email: srinath.vadlamani@gmail.com
1525 Fillmore Ct.	Tel: 303-859-0208
Louisville, CO 80027	Website: srinathv.github.com

Research Interests

High performance scientific computing spanning personal to massively parallel architectures.

Work Experience

- Research Scientist, Tech-X Corp. (2006-Present):
  - Current work responsibilities include implementing validation and verification tools via Fortran90, Hdf5 and Python, to the gyrokinetic parallel fusion codes GYRO (General Atomics) and GEM (CU-Boulder)
  - Collaborated on a conservative interpolation prototype in the climate code library *libcf*
  - Worked with staggered grid visualization for scientific simulations
  - Lead developer of the Framework for Modernization and Componentization of Fusion Modules (FMCFM)
    - Test driven development for fusion transport model interfaces
    - Doxygen inline documentation for Fortran90
    - Offers interlanguage interoperability via python generated calls and C++ classes
  - Implemented transport flux models in the multiscale parallel Framework Application for Core-Edge Transport Simulation (FACETS) code
    - Part of a multi-institutional team
    - Collaboration with many scientists and computer scientists to achieve the goal of multi-component integration
    - Code included C++ Fortran 77 & 90, and Python running under the general C++ FACETS framework on LCFs
- Post Doc, Univ. of Washington (2005-2006):
  - Developed MH4D which is a finite volume MHD code on an unstructured grid for innovative confinement fusion concepts

Relevant Skills

- Experienced in programming C, C++, Fortran (77/90/2003), Bash and Python languages
- Developed HPC codes using MPI and OpenMP
- Expert in Darwin and Unix platforms
- Experienced with Git, Mercurial, Subversion, and CVS version control systems
- Experienced with CMake,Autotools, SCONS and basic Makefile build systems
- Experienced with the Visit visualization tool

Education

- University of Colorado at Boulder
  - Ph.D., Applied Mathematics, May 2005
  - Dissertation Topic: An Algorithmic Unification of Particle-In-Cell and Continuum Methods and Wave-Particle Description for the Electron Temperature Gradient (ETG) Instability Saturation
  - Advisor: Scott E. Parker (Physics) and James D. Meiss (Applied Mathematics)
  - M.S., Applied Mathematics, May 2003

Education (continued)

- University of North Carolina at Wilmington
  - M.S., Mathematics, August 2001
  - Thesis topic: Study of Lie Symmetries of the Vaidya Equations
  - Advisor: Russel L. Herman (Mathematics and Statistics)
- University of North Carolina at Chapel Hill
  - B.S., Physics, May 1996

Recently Funded Projects

- Parallel Validation Tools for Fusion Simulations, SBIR
- Framework Application for Core-Edge Transport Simulations (FACETS), SciDAC
- Framework for Modernization and Componentization of Fusion Modules, SBIR

Professional Memberships

- America Physical Society
- Society of Industrial and Applied Mathematics

Referred Publications

- A. H. Hakim, T. D. Rognlien, R. J. Groebner, J. Carlsson, J. R. Cary, S. E. Kruger, M. Miah, A. Pankin, A. Pletzer, S. Shasharina, S. Vadlamani, R. Cohen, and T. Epperly, "Coupled core-edge simulations of H-mode buildup using the Fusion Application for Core-Edge Transport Simulations (FACETS) code" , Phys. Plasmas 19, 032505 (2012), DOI:10.1063/1.3693148
- A.Pankin, A. Pletzer, S. Vadlamani, J. R. Cary, A. Hakim, S. E. Kruger, M. Miah, T. D. Rognlien, S. Shasharina, G. Bateman, A. H. Kritz, and FACETS team, "Simulation of anomalous transport in tokamaks using the FACETS code," Vol. 182, 1, (2011), 180–184.
- A H Hakim, J R Cary, J Candy, J Cobb, R H Cohen, T Epperly, D J Estep, S Krasheninnikov, A D Malony, D C McCune, L McInnes, A Pankin, S Balay, J A Carlsson, M R Fahey, R J Groebner, S E Kruger, M Miah, A Pletzer, S Shasharina, S Vadlamani, D Wade-Stein, T D Rognlien, A Morris, S Shende, G W Hammett, K Indireshkumar, A Yu Pigarov, H Zhang. "Coupled whole device simulations of plasma transport in tokamaks with the FACETS code", Accepted for publication in SciDAC 2010: J. Physics: Conf. Series, 2010.
- John R. Cary, Ammar Hakim, Mahmood Miah, Scott Kruger, Alexander Pletzer, Svetlana Shasharina, Srinath Vadlamani, Alexei Pankin, Ronald Cohen, Tom Epperly, Tom Rognlien, Richard Groebner, Satish Balay, Lois McInnes, Hong Zhang, "FACETS - a Framework for Parallel Coupling of Fusion Components", The 18th Euromicro International Conference on Parallel, Distributed and Network-Based Computing. Pisa, Italy. 2010.
- A. Hakim, J.R. Cary, T.D. Rognlien, R.J. Groebner, J. Candy, J. Carlsson, R.H. Cohen, K. Indireshkumar, S.E. Kruger, D. McCune, A.Y. Pankin, A. Pletzer, S. Vadlamani, A.Y. Pigarov, T. Epperly, L. McInnes , M. Miah, S. Shasharina, H. Zhang, "Coupled Core-Edge Simulations of Pedestal Formation Using the FACETS Framework", IAEA FES 2010 Conference. Invited contribution (October 2010).
- Pletzer, A., McCune, D., Muszala, S., Vadlamani, S., Kruger, S. "Exposing Fortran derived types to C and other languages", Computing in Science and Engineering, July/August 2008.
- Vadlamani, S., Parker, S. E. , Chen, Y. and Kim, C. "The particle-continuum method: an algorithmic unification of particle-in-cell and continuum methods", Comp. Phys. Comm., 164 (2004) 209-213.
- Vadlamani, S., Shumlak, Uri. and Marklin, George. "Validation of the Semi-Implicit Algorithm Time Stepping for MH4D", Journal of Fusion Energy, 1-2 (2006) 227-232.