

Akil Narayan

182 George Street
Providence, RI 02912
Tel: (401) 863-2230
Fax: (401) 863-1355
Email: akil@brown.edu

Objective Academic or research position in applied mathematics or scientific computing

Education

| | |
|-------------|--|
| 2004 - 2009 | <i>PhD, Applied Mathematics</i> – (In progress) Division of Applied Mathematics, Brown University . |
| 2003 – 2004 | <i>Master of Science, Applied Mathematics</i> – Division of Applied Mathematics, Brown University |
| 1999 – 2003 | <i>Bachelor of Science, Applied Mathematics</i> – McCormick School of Engineering, Northwestern University |
| 1999 – 2003 | <i>Bachelor of Science, Electrical Engineering</i> – McCormick School of Engineering, Northwestern University |

Research My research interests lie primarily in the area of scientific computing and numerical analysis. Previous work includes analysis with spectral, finite-element, finite-volume, and Discontinuous Galerkin methods. I have developed mathematical models for electromagnetic and plasma systems and tested them with numerical simulations. I currently work on novel spectral method approaches and Lagrangian particle approximation. My past research interests include parareal and reduced-basis approximations, and I have studied applications of numerical methods to optical communication systems and high-energy optical beams.

| | |
|----------------|---|
| 2004 – present | Research student under Jan Hesthaven, Professor of Applied Mathematics at Brown University |
| Summer 2007 | Research intern at Hypercomp, Inc. Investigated novel algorithms for high-performance computing. |
| Summer 2003 | Research student under Gino Biondini at The Ohio State University |
| 2002 – 2003 | Undergraduate research under William Kath, Professor of Engineering Sciences and Applied Mathematics at Northwestern University |
| 2002 – 2003 | Undergraduate research under Allen Taflove, Professor of Electrical Engineering at Northwestern University |

Professional Skills

Technical

- Scientific computing
- Finite-element
- Spectral methods
- Discontinuous Galerkin
- Stochastic dynamics
- Numerical analysis

Computational

- Operating systems: Linux/Unix, PC
- Programming languages: Matlab, C++, Python, Fortran
- Skills: LaTeX, HTML, word processor, spreadsheet, presentation

Publications

Narayan, A. and Hesthaven, J. (2008). "Application of the fast Fourier transform to general Jacobi polynomials expansions" – *In preparation*

Narayan, A. and Hesthaven, J. (2008). "Quasi-optimal Lebesgue constants from Gauss quadrature nodes for orthogonal polynomials" – *In preparation*

Narayan, A. and Hesthaven, J. (2008). "A generalization of the Wiener rational basis" – *In preparation*

Teaching

I have extensive one-on-one tutoring experience for a diverse range of undergraduate sciences courses. In addition, I have three semesters of TA experience, and have co-instructed an introductory computing sciences course. I have participated in and facilitated a variety of programs at Brown University aimed at improving the quality of undergraduate education.

| | |
|----------------|---|
| Fall 2008 | Teaching Assistant for "Methods of Applied Mathematics", Division of Applied Mathematics, Brown University |
| Spring 2008 | Co-teacher for an undergraduate course, "Introduction to Computing Sciences", Division of Applied Mathematics, Brown University |
| 2003 – present | Mathematics tutor for undergraduate students in a variety of courses ranging from introductory calculus classes to graduate-level digital signal processing courses, Brown University |
| 2004 – 2005 | Teaching Assistant for "Methods of Applied Mathematics", Division of Applied Mathematics, Brown University |
| 2001 – 2003 | Undergraduate tutor for various engineering and mathematics courses, Northwestern University |

| | | |
|--|-------------|--|
| <u>Professional Development</u> | 2006 – 2009 | Teaching consultant for the Sheridan Center for Teaching and Learning, Brown University http://www.brown.edu/Administration/Sheridan_Center/consulting/itc.html |
| | 2006 – 2007 | Sheridan Center Professional Development Seminar Series http://www.brown.edu/Administration/Sheridan_Center/certificateprograms/pds.html |
| | 2005 – 2006 | Sheridan Center Classroom Tools Seminar Series http://www.brown.edu/Administration/Sheridan_Center/certificateprograms/ct.html |
| | 2004 – 2009 | Sheridan Center Teaching Seminar Series http://www.brown.edu/Administration/Sheridan_Center/certificateprograms/sts.html |

The Sheridan Center for Teaching and Learning is an organization at Brown University devoted to the improvement of the quality of teaching.
http://www.brown.edu/Administration/Sheridan_Center/

| | | |
|-----------------------|----------------|--|
| <u>Awards</u> | 2008 – 2009 | Dissertation fellowship, Brown University |
| | 2003 – 2004 | Academic fellowship, Brown University |
| <u>Service</u> | 2005 – present | Liaison between department and The Sheridan Center for Teaching and Learning, Brown University |
| | 2005 – present | Organizer for departmental student seminars, Brown University |
| | 2003 – present | Student government representative for department, Brown University |

| | | |
|---|----------------|---|
| <u>Professional Affiliations</u> | 2000 – present | The Institute of Electrical and Electronics Engineers |
| | 2003 – present | The Society of Industrial and Applied Mathematicians |
| | 2003 – present | The American Mathematical Society |

Citizenship: United States

References: Available upon request.