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Mini P Kurian

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Research Interests

Computational Neuroscience, Mathematical Biology

Education

PhD Mathematics, Arizona State University, Tempe AZ, *In Progress*
MS Physics, University of Massachusetts, Amherst MA, 2004
MSc Physics, Indian Institute of Technology, Chennai India, 2001
BSc Physics, Mahatma Gandhi University, Kottayam India, 1999

Additional Training

Methods in Computational Neuroscience Course 2006, Marine Biology Laboratory, Woods Hole, MA, Jul 30 – Aug 27, 2006
Directors: Bard Ermentrout, John White
Project Title: Modeling sleep awake mechanisms

Okinawa Computational Neuroscience Course 2006, Okinawa Institute of Science and Technology, Okinawa, Japan, Jun 26 – Jul 7, 2006
Directors: Kenji Doya, Upinder Bhalla, Nicolas Le Novère, Shinya Kuroda
Project Title: Influence of dendritic structure on firing pattern in model neocortical neurons

NCBI Training: A Field Guide to GenBank and NCBI Molecular Biology Resources ASU, Jan 27, 2006

Workshops and Conferences

1st Annual ASU-BNI Neuroscience Symposium 2006, Barrow Neurological Institute, Phoenix, AZ, Nov 4, 2006

World Association of Modeling-2nd Annual Biologically Accurate Modeling Meeting San Antonio, TX, Mar 23 – 25, 2006

IPAM Workshop on 'Probabilistic Models of Cognition: The Mathematics of Mind' Institute of Pure and Applied Mathematics, UCLA, Jan 23 – 29, 2005

APS Topical Conference on 'Opportunities in Biology for Physicists' San Diego, CA, Jan 30, 2004 –Feb 1, 2004

New England Particle Physics Retreat Woodstock, NH, Aug 18 – 23, 2002

Research Projects

Modeling of Motor Neuron Plasticity after Spinal Cord Injury
Dec 2005 – Present, Arizona State University, Tempe
Mathematical modeling of motor neuron plasticity after incomplete spinal cord injury

Computational Modeling of Circadian Rhythms Sep 2003 – Aug 2004, University of Massachusetts, Amherst
Study of transient internal desynchronization (jetlag, shift work, SAD) by computational modeling of coupled oscillators

Bacteriolytic Therapy of Cancer Cells Sep 2003 – Aug 2004, University of Massachusetts, Amherst
Engineering therapeutics targeted to tumors using bacteria

dE/dx measurements in BABAR Drift Chamber May 2002 – Jan 2003, University of Massachusetts, Amherst
Study of matter-antimatter asymmetries (CP violations) in BABAR B-Meson factory at Stanford Linear Accelerator Center using Monte Carlo Simulations

Quantum Copying Machines Sep 2000 – Apr 2001, Indian Institute of Technology Madras, Chennai, India
The "quality" of original and copy modes of a quantum copying machine was analytically evaluated by calculating the Hilbert – Schmidt Norms

Neutrino Masses and Oscillations Jun 2000, Institute of Mathematical Sciences, Chennai, India
Reviewed the Standard Model of Electroweak Interactions, the hierarchy problem in High Energy Physics, neutrino problems, experimental setups, the MSW effect and the effects of flavor mixing

Introduction to Field Theory May 2000, Institute of Mathematical Sciences, Chennai, India
Studied relativistic wave equations, quantum electrodynamics, Feynman rules for electroweak interactions, and apply these to estimate cross sections for spinless electron – muon scattering and neutrino – electron scattering

Posters

CNS 2007, Toronto, Canada, Jul 8-12 (Abstract Submitted)
"Two compartment model of spasticity in spinal motor neurons at normal, acute and chronic stages" Mini Kurian, Sharon Crook

OCNC 2006, Okinawa, Japan, Jun 26 – Jul 7
"Modeling motorneurons after spinal cord injury in acute and chronic stages" Mini Kurian, Sharon Crook, Brian Hillen

Professional Services

CNS 2007, Toronto, Canada, Jul 8-12, 2007
Workshop on 'Role of computational neuroscience in integrating Brain - Machine interface'
Organizers: Mini Kurian, Joe Graham, Sharon Crook, Ranu Jung.

Grant Reviewer, ASU, Aug 2004 – Aug 2007
Selecting graduate level scientific projects for funding by Graduate Professional Students Association, Arizona State University

Work Experience

Graduate Teaching Associate, ASU

MAT 170	Pre Calculus	Spring 2006
MAT 142	College Mathematics	Fall 2005-06, Spring 2007
MAT 119	Finite Mathematics	Spring, Summer 2005
MAT 117	College Algebra	Fall 2004

Graduate Student Organizing Coordinator, UMass Amherst
Organizing graduate student activities, departmental meetings, handle grievances, and public relations, Sep 2003 – May 2004

Teaching Assistant, UMass Amherst
Teaching, grading Physics Laboratory Course in Mechanics
Sep 2001 – May 2002, Feb 2003 – May 2003

Research Assistant, UMass Amherst
Coding and simulating high energy physics problems and writing reports, Jun 2002 – Jan 2003

Professional Memberships

American Mathematical Society, Student Member, Aug 2004 – Present

Society of Industrial and Applied Mathematics, Student Member, Jan 2005 – Present

American Physical Society, Student Member, Aug 2003 – Aug 2004.

Computer Skills

Operating Systems: Unix, Linux, Windows

Programming Languages: C++, Perl, BASIC, ROOT, Perl

Software: LaTex, MS Office, Photoshop, Matlab, Mathematica, Maple, XPP, Genesis, Neuron, Endnote

Awards and Achievements

- MBL Grant for attending the Methods in Computational Neuroscience Course, 2006
- Okinawa Institute of Science and Technology Full Scholarship and Travel Grant to attend Okinawa Computational Neuroscience Course, 2006
- Graduate Professional Students Association Travel Grant to attend the World Association of Modeling-2nd Annual Biologically Accurate Modeling Meeting, 2006
- Arizona State University Travel Grant to attend the World Association of Modeling-2nd Annual Biologically Accurate Modeling Meeting, 2006
- World Association of Modeling Travel Grant for attending 2nd Annual Biologically Accurate Modeling Meeting, 2006
- IPAM Grant for attending Probabilistic Models of Cognition: The Mathematics of Mind Workshop, 2005
- APS Grant for attending Topical Conference, Opportunities in Biology for Physicists, 2004
- Arthur Quinton Outstanding Teaching Assistant Award, University of Massachusetts, Amherst, 2001 – 2002
- University Grant Commission Junior Research Fellowship and National Eligibility Test for Lectureship, 2000
- IIT Merit Scholarship for pursuing Masters', 1999 – 2001
- Prof. P.M. Devasia Endowment Award for the highest score in 2nd year BA/ BSc English, 1998
- Palamattom Endowment Award for the highest score in BA/ BSc English, 1996 – 1999
- Paper prize "Nuclear Power and Radio – Isotope Applications" Xth All India Essay Contest in Nuclear Science and Technology, DAE, Government of India, 1998
- 46th in National Science Talent Examination, India, 1995