Scott MacRae

Professor of Ophthalmology, University of Rochester

Education
MD, University of Wisconsin
Medical School, 1977

BS, University of Wisconsin
Madison, Zoology, 1974

Research Interests
• Design of numerous refractive
  surgical instruments
• Laser surgery techniques
• Holds the patent on a commonly
  used astigmatism treatment

Recent Research Projects
• Investigation of accommodation
  and presbyopic lenses (multifocal
  and accommodative intraocular
  lenses)
• Development of The Rochester
  Nomogram, which improves
  accuracy of customized LASIK
  and is commonly used worldwide
  currently

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James L. McGrath

Associate Professor of Biomedical Engineering, University of Rochester

Education
PhD, Massachusetts Institute of
Technology
Biological Engineering, 1998

MS, Massachusetts Institute of
Technology
Mechanical Engineering, 1994

BS, Arizona State University
Mechanical Engineering, 1991

Research Interests
• Nanoparticle and molecular
  separations
• Nanotechnology
• MEMS and micro fabrication
• Cell culture technologies

Recent Research Projects
• The interaction of nanoparticles
  with cells and protein mixtures
• Ultrathin silicon-based nanomem-
  branes for filtration of molecules
  and nanoparticles
• Ultrathin silicon-based nanomem-
  branes for biological co-cultures

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Zoran Ninkov

Micron Technology Professor of Microelectronic Engineering, Rochester Institute of Technology

Education
PhD, University of British Columbia
Astronomy, 1985

MS, Monash University
Physical Chemistry, 1980

BS, University of Western Australia
Physics, 1977

Research Interests
• Novel 2-D CMOS detector arrays
• Fundamental limitations of visible
  and IR arrays
• Miniaturized multispectral
  systems

Recent Research Projects
• Development of novel two-
  dimensional detector arrays
• Development of image process-
  ing techniques for optimal
  analysis of such two-dimensional
  astronomical image data

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Judith L. Pipher

Professor Emeritus of Physics and Astronomy, University of Rochester

Education
PhD, Cornell University
Astronomy, 1971

MS, Cornell University
Astronomy, 1970

BS, University of Toronto
Physics and Astronomy, 1962

Research Interests
• Infrared observations of star
  forming regions
• Infrared detector array devel-
  opment and applications to
  astronomy and to persistent
  surveillance

Recent Research Projects
• Teledyne HgCdTe 10 micron
  cutoff detector arrays for use in
  future space experiments, with
  particular emphasis on NEOCam
  (Near Earth Object Camera)
• Characterization of Raytheon long
  wavelength HgCdTe detector
  arrays
• FIRE spectrometer development
• Persistent surveillance-driven
  projects

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Navalgund A. Rao

Associate Professor in the Chester F. Carlson Center for Imaging Science
Rochester Institute of Technology

Education
PhD, University of Minnesota
Physics, 1979

MSc, Banaras Hindu University
Physics, 1972

BSc, Banaras Hindu University
Physics, Math, Chemistry, 1970

Research Interests
• Ultrasound imaging systems
• Biomedical imaging

Recent Research Projects
• Ultrasound echo signal analysis and tissue histology, NIH-NCI
• Scalar diffraction from circular aperture
• Computer modeling of nonlinear ultrasound wave propagation and image formation in soft tissue

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Lewis Rothberg

Professor of Chemistry, of Chemical Engineering, and of Physics, University of Rochester

Education
PhD, Harvard University
Physics, 1984

BS, University of Rochester
Physics, 1977

Research Interests
• Organic device science
• Metal nanoparticle enhanced spectroscopy and imaging
• Biomolecular sensing

Recent Research Projects
• Novel optical technologies for sensing of nucleic acids and proteins
• Mechanistic studies of electronic polymers used in luminescent devices
• Plasmonic enhancement of molecular absorption and luminescence

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Ashutosh Saxena

Assistant Professor in the Department of Computer Science, Cornell University

Education
PhD, Stanford University, 2009

MS, Stanford University, 2006

BTech, Indian Institute of Technology, 2004

Research Interests
• Machine Learning
• Robotics
• Computer Vision

Recent Research Projects
• Personal Robotics
• Developing algorithms that enable robots to perform household chores

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Alireza Seyedi

Assistant Professor of Electrical and Computer Engineering, University of Rochester

Education
PhD, Rensselaer Polytechnic Institute
Electrical Engineering, 2004

MS, Rensselaer Polytechnic Institute
Electrical Engineering, 1999

BS, Sharif University of Technology
Electrical Engineering, 1997

Research Interests
• Body sensor networks
• Energy aware communication
• Cognitive radios and networks
• Multi-gigabit 60GHz WPANs

Recent Research Projects
• Short-range wireless communications with applications in medical imaging and personal health care

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Geunyoung Yoon

Associate Professor of Ophthalmology, of Optics in the Institute of Optics, and in the Center for Visual Science, University of Rochester

Education
PhD, Osaka University
Laser Optics, 1998

MS, Osaka University
Laser Optics, 1995

BS, SungKyunKwan University
Physics, 1990

Research Interests
• Adaptive optics and in-vivo ocular surface and intraocular imaging
• Customized vision correction
• Presbyopic correction

Recent Research Projects
• Large stroke adaptive optics for correcting highly aberrated eyes
• Investigation of accommodation and presbyopic lenses (multifocal and accommodative intraocular lenses)

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Xi-Cheng Zhang

Director of the Institute of Optics, M. Parker Givens Professor of Optics, University of Rochester

Education
PhD, Brown University
RI Physics, 1986

MS, Brown University
RI Physics

BS, Peking University, 1982

Research Interests
• Terahertz optics sensing
• Terahertz optics imaging

Recent Research Projects
• The generation, detection, and applications of free-space THz beams with ultrafast optics

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OTHER FACULTY RESEARCHERS

Jonathan S. Arney
Professor in the Center for Imaging Science
Rochester Institute of Technology

Education
PhD, University of North Carolina
Chemistry, 1975

Research Interests
Image microstructure
Halftone modeling
Interaction of light with
  printing substrates

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Joseph S. Baschnagel
Assistant Professor of Psychology
Rochester Institute of Technology

Education
PhD, SUNY University at Buffalo
Psychology, 2006

MA, SUNY University at Buffalo
Psychology, 2002

Research Interests
Attention
Smoking behavior
Post-traumatic stress disorder
Psychophysiological measurement

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Jean-Philippe Couderc
Research Associate Professor of Medicine and Associate Professor (Research) of Electrical and Computer Engineering, University of Rochester

Education
MBA, Simon School of Business
Health Care Management, 2003

PhD, National Institute of Applied Science
Biomedical Engineering, 1997

MS, Medical Specialties, Oth, France
Non-Medical School, 1994

Research Interests
Computational science and engineering
Numerical analysis
Computer science applied to electrophysiological signals

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Marcos Esterman
Associate Professor of Industrial and Systems Engineering, Rochester Institute of Technology

Education
PhD, Stanford University, 1995

MS, MIT, 1990

Research Interests
Product development
Design robustness
Sustainable print systems
Systems engineering

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