

Andrew James Kennedy • B.A.Sc., M.A.Sc.
91 Colbourne St. • Hamilton, ON • L8R 2G6
home: +1 905 515 4161 • ajkenned@alumni.uwaterloo.ca

Education

Candidate for Ph.D. in Electrical Engineering Sept 2002 - present
McMaster University, Hamilton, ON

- Supervisor: Dr. S. Shirani

M.A.Sc. in Systems Design Engineering May 1997 - April 1999
University of Waterloo, Waterloo, ON

- Completed thesis “Multiplicative Lateral Inhibition Models for Sharpening and Smoothing Images”, Supervisor: Dr. M.E. Jernigan

Honours B.A.Sc. in Systems Design Engineering Sept 1992 - April 1997
University of Waterloo, Waterloo, ON

- Graduated with First Class Honours and on Dean's Honour List

Academic Interests

- Signal and image processing
- Biological vision models
- Nonlinear image processing
- Wavelets
- Image enhancement for low vision subjects
- Biomechanics
- Societal impact of technology
- Engineering education

Teaching Experience

Curriculum Developer May – June 1999
Dept. of Systems Design Engineering, University of Waterloo, Waterloo, ON

- Updated lab component of Image Processing course to use Matlab from proprietary software

Course Instructor, Digital Computation - Gen E 121 Jan 1999 - April 1999
University of Waterloo, Waterloo, ON

Gained valuable teaching experience as part of a 3 person teaching team instructing an introductory course in C++ programming and scientific computing to 250 first year Engineering students. **Key Contributions:**

- Independently prepared and presented lecture material
- Prepared assignment on C++ class design and examination questions for midterm and final exams
- Developed course web page and supplemental examples

Teaching Assistantships Sept 1997 – Dec 1998
University of Waterloo, Waterloo, ON

- SY DE 252 (F1997) - Linear Signals and Systems
- SY DE 444 (W1998) - Biomedical Engineering
- SY DE 192 (S1998) - Digital Design
- SY DE 575 (F1998) - Image Processing

Other Related Employment

Programmer / Analyst

Sept 1999 - July 2002

Imaging Research Inc., St. Catharines, ON

Fulfilled objectives for the development of image analysis software for life sciences and pharmaceutical applications in a professional and timely fashion while contributing to and fostering greater communication within the company. Gained knowledge of general and specific software development, testing, debugging and defect resolution techniques. **Key Contributions:**

- Researched and implemented algorithm to estimate the rotation of the regular array of spots in DNA microarray images
- Implemented numerous shape and geometric measurements of biological features
- Developed control algorithm for a novel high speed autofocus device for wellplates including integrating new hardware elements and updating existing integrated hardware
- Established and maintained positive relationships with multiple external hardware vendors leading to rapid resolution of defect and feature requests
- Established and expanded monthly company newsletter to foster greater internal communication

Program Assistant

July 1997, July 1998, July 1999

Shad Valley Waterloo 1997, 1998, 1999, Waterloo, ON

Gained valuable leadership experience while assisting in the academic and intellectual development of a group of exceptional secondary school students. **Key Contributions:**

- Assisted in the planning and operation of an engineering and entrepreneurship program for 48 exceptional secondary school students
- Developed curriculum for and taught workshops on Human Anatomy and Biomechanics; and Image Processing
- Mentored a group of 12 students during the design project component of the program

Analyst

May - August 1996

Deloitte & Touche Consulting Group, Toronto, ON

Worked independently in a major IT consulting house on a wide variety of projects contributing in key aspects to major projects for the local office. **Key Contributions:**

- Specified and developed a data exchange interface for a major client in Visual C++
- Designed and implemented an email client application for internal Deloitte & Touche use in a 200 consultant office using Visual Basic 4.0
- Performed market research regarding several major telecommunications companies

Professional Affiliations

- Student Member, IEEE (1997-1999)
- Associate Member, IEEE (1999 - present)

Awards and Scholarships

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|---------------|--|
| Graduate | <ul style="list-style-type: none">• American Association of Optometrists Travel Fellowship (1998) to attend Vision Science conference• Ontario Graduate Scholarship (May 1998 - April 1999)• University of Waterloo Graduate Scholarship (Winter 1998)• USENIX Travel Fellowship to attend LISA conference (1997) |
| Undergraduate | <ul style="list-style-type: none">• Professional Engineers of Ontario Upper Year Scholarship (1997)• Waterloo Engineering Entrance Scholarship (1992) |

Publications

Refereed Conference Proceedings

- Omoruyi, Gloria; Leat, Susan J.; Jernigan, M. Ed, and Andrew Kennedy, (2001) Image enhancement filters for the visually impaired: a comparison of generic and customised filters, *Vision Science and its Applications*, Vol. 2, OSA Technical Digest Series (Optical Society of America, Washington DC)
- Leat, Susan J.; Omoruyi, Gloria; Kennedy, Andrew; and Ed Jernigan, (2000) A Comparative Study of Potential Generic and Custom-devised Image Enhancement Filters for Improving the Visibility of Images for People with Low Vision, *Applied Vision Association*, December 20, 2000, Surrey University, UK.
- Kennedy, Andrew J.; Leat, Susan J.; and M. Ed Jernigan, (1998) A Generalized Image Processing Application for the Enhancement of Images for the Visually Impaired, *Vision Science and Its Applications*, Vol. 1, OSA Technical Digest Series (Optical Society of America, Washington DC), pp. 124-127.
- Smith (Churchill), Laura Lynne; Kennedy, Andrew; and Carolyn MacGregor, (1997) Usability Testing of Job Demands Analysis Worksheets, *Proceedings of the 29th Annual Conference of the Human Factors Association of Canada/ACE*, (HFAC/ACE, Mississauga), pp. 91-96.

Service

University

Consultant Programmer (Part-Time) March 1997 – March 2002

University of Waterloo, School of Optometry, Waterloo, ON

Individually responsible for specification and design, based on client interactions, of several applications for use in research into image enhancement to improve the quality of life for low vision subjects. **Key Contributions:**

- Expanded existing functionality and substituted several algorithms for increased efficiency.
- Provided training to users of the applications
- Provided image processing and image analysis background knowledge to client

Consultant Programmer (Full-Time) May - July 1997,

University of Waterloo, Engineering Year 1 Office, Waterloo, ON

June 1998

Individually responsible for the maintenance and modification of an Admissions Database written in Visual Basic 4.0 and Access. **Key Contributions:**

- Migrated the Windows 3.x compatible application to a Win32 compatible version
- Prepared documentation and trained users in the operation of the Admissions Database

Unix System Administrator May 1997 - August 1999

University of Waterloo Vision and Image Processing Group, Waterloo, ON

- Administered a lab consisting of 1 Mac PPC, 1 IBM PCs, 4 Unix workstations and 4 X-terminals

Community

Assistant instructor 1995-2001

University of Waterloo Martial Arts Club teaching Aiki Ju-Jutsu

Assistant instructor 1999 – 2002

St. Catharines YMCA Jiu-Jitsu club

Advisor / Auditor

1999 - Present

Junior Achievement of the Niagara Peninsula, Company Program

- Mentored a group of approximately 20 secondary school students through startup, operation and liquidation of a business venture
- Audited the books of the company
- Provided marketing training (2002)
- Volunteered with student council body for the Company Program

Volunteer

1999 - Present

Canada FIRST Robotics competition

- Facilitated kick-off meeting in St. Catharines for 2002, 2003 competitions
- Pit marshal and general runner at annual National Competition

Volunteer

2000 - Present

Local triathlons, running races and mountain bike races

- 2000 - Guelph Lake 2 Triathlon, Niagara-on-the-Lake Duathlon, Dundas Valley Trail Run
- 2001 - Niagara Triathlon, Belwood Lake Triathlon, Liberty! Bicycles Off-Road Squeezer

Conferences Attended

- 28th Annual Conference of the Human Factors Association of Canada/ACE - Presented by HFAC/ACE - October 1996, Waterloo, ON
- 11th Annual Systems Administration Conference (LISA 1997) - Presented by USENIX - October 1997, San Diego, CA
- Vision Science and Its Applications (VSIA 1998) - Presented by the Optical Society of America - February 1998, Santa Fe, NM

Other Activities

- Maintain current First Aid and CPR qualifications
- Attended OCLC Bark Lake Leadership Development (1991) and Outdoor Skills Development (1989) Camps
- Attended Shad Valley Business, Science and Engineering Program at the University of New Brunswick campus (1990)
- Avid reader of Biographical, Non-Fiction, Historical Fiction, Science Fiction and Fantasy literature
- Top 10% in age group in Ontario as triathlete and runner (marathon to 5k)
- World traveller, frequent camper, canoer and hiker
- Active amateur photographer

References

Dr. Ed Jernigan
Professor and Department Chair,
Department of Systems Design Engineering
University of Waterloo
Waterloo, ON
N2L 3G1
Email: jernigan@engmail.uwaterloo.ca
Ph: +1 519 888 4567 x4644
Fax: +1 519 746 4791

Dr. Paul Fieguth
Assistant Professor,
Department of Systems Design Engineering
University of Waterloo
Waterloo, ON
N2L 3G1
Email: pfieguth@ocho.uwaterloo.ca
Ph: +1 519 888 4567 x3599
Fax: +1 519 746 4791

Dr.Carolynn MacGregor
Assistant Professor,
Department of Systems Design Engineering
University of Waterloo
Waterloo, ON
N2L 3G1
Email: cgmacre@engmail.uwaterloo.ca
Ph: +1 519 888 4567 x2897
Fax: +1 519 746 4791

Mr. Louis Dagenais
Director, Software Development
Imaging Research Inc.
500 Glenridge Ave.
St. Catharines, ON
L2R 3A1
Email: Louis.Dagenais@ImagingResearch.com
Ph: +1 905 688 2040 x243
Fax: +1 905 685 5861