

# CURRICULUM VITAE

*Jing Wang*

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## EDUCATION

### **University of Minnesota**

- PhD in Mathematics August 2002.  
School of Mathematics.  
Thesis Title: Design of Progressive Lenses–Mathematical Analysis and Numerical Methods.  
Advisers: Professors Robert Gulliver and Fadil Santosa.
- M.S. in Computer Science September 2004.  
Department of Computer Science and Engineering.  
Advisor : Professor Ding-Zhu Du

### **Dalian University of Technology, Dalian, P.R.China**

- M.S. in Computational Mathematics March 1996.  
Institute for Mathematical Sciences. Dalian University of Technology, China  
Advisor: Professor Ren-Hong Wang

### **University of Inner Mongolia, Inner Mongolia, P.R.China**

- B.S. in Mathematics July 1993.  
Department of Mathematics.

## RESEARCH INTERESTS

Applied mathematics; Numerical analysis of elliptic and hyperbolic systems; Scientific computing, especially with discontinuous Galerkin finite element method; Optics; Image processing.

## PROFESSIONAL EXPERIENCE

- Dec. 2004–Current: Scientist, Vital Images Inc, Minnesota.  
Conducted research on 3D image analysis, in particularly on image segmentations.
- May. 2004–Dec. 2004: Senior Scientist, Johnson and Johnson, Virginia.  
Worked on optimization algorithms for optical designs.
- Sep. 2002–Aug. 2004: Postdoctoral Associate, IMA, University of Minnesota.  
Participated in the activities of the IMA annual years on Optimization (2002-2003).  
Developed research collaborations with Professors Douglas Arnold, Bernardo Cockburn and Fernando Reitich in the areas of Numerical Relativity, Linear Elasticity and Geometric Optics.  
Continued my research in the area of optical design.

- Sep. 1998–May 2002: Teaching Assistant, School of Mathematics, University of Minnesota. Taught mathematical courses for undergraduate students. Courses covered: Calculus I/II, Multivariable Calculus, Linear Algebra and Differential Equations, Probability.
- May 2001–Aug. 2001: Research Assistant, School of Mathematics, University of Minnesota.
- Jul. 2002–Aug. 2002: Summer Intern, BMC Vision-ease Lens Company, Ramsey, MN. Developed methods and software for optical lens design.
- May 2000–Sep. 2000: Summer Intern, BMC Vision-ease Lens Company, Ramsey, MN. Developed methods and software for optical lens design.
- Sep. 1996–July 1997: Teaching Assistant, Department of Mathematics, Dalian University of Technology. Taught Calculus for undergraduate students.

## PUBLICATIONS

1. An efficient spectral/discontinuous finite element formulation of a phase-space-based level set approach to geometrical optics, *Journal of Computational Physics*, Vol 208, (2005) 175–195; with B. Cockburn, J. Qian and F. Reitich.
2. Discontinuous Galerkin methods for incompressible elastic materials, *to appear on Comput. Methods Appl. Mech. Engrg.*, 2005; with D. Schoetzau and B. Cockburn.
3. Analysis of a variational approach to progressive lens design, *SIAM Journal on Applied Mathematics*, Vol 64, No. 1 (2003) 277-296; with R. Gulliver and F. Santosa.
4. A numerical method for progressive lens design, *Mathematical Models and Methods in Applied Sciences*, Vol 14, No. 4 (2004) 619-640; with F. Santosa.
5. Constraints preserving boundary conditions for wave equations, *Preprint*; with D. Arnold and N. Tarfulea.
6. Analysis of toric progressive lens surfaces, *Preprint*; with F. Santosa and H. Zhang.
7. Quadratic spline interpolation with constrained length, *Numer. Math—A Journal of Chinese University*, 19 (1997) 7–12.
8. Comment to the paper “A theorem on the dimensions of self-similar sets”, *Acta Mathematica Sinica*, 40 (1997) 363–364.

## PATENTS

- Multifocal optical device design, *filed by the University of Minnesota*, August, 2003; with R. Gulliver and F. Santosa.
- Short channel progressive addition lenses, *filed by the Spectacle Lens Group of Johnson and Johnson*, 2005.
- Method for providing dual surface progressive addition lens series, *filed by the Spectacle Lens Group of Johnson and Johnson*, 2005.

## INVITED TALKS

- Department of Mathematics, University of California – San Diego, 2004.
- Department of Mathematics, Texas Tech University, 2004.
- Department of Mathematics, Ohio State University, 2003.
- The spectacle lens group, Johnson and Johnson, Roanoke, Virginia, 2003.
- BCM vision-ease Lens, Ramsey, Minnesota, 2002.
- IMA/MCIM industrial seminar, School of Mathematics, University of Minnesota, 2002.

## CONFERENCES:

- IMA workshop on Probability and Statistics in Complex Systems: Genomics, Networks, and Financial Engineering, *IMA*, Sep. 2003-May 2004.
- Conference on partial differential equations and applications, *Notre Dame*, August 14-17, 2003.
- IMA workshop on optimization, *IMA*, Sep. 2002-May 2003.
- Current trends in mathematics and its applications: *A Conference in Honor of Avner Friedman's 70th Birthday*, University of Minnesota, November 8-10, 2002
- IMA workshop on geometric design, *IMA*, April 23-27, 2001.

## HONORS AND AWARDS

- Citation for excellence in teaching, School of Mathematics, University of Minnesota, 2001.
- Xiang Fanglong scholarship for excellence in research, Dalian University of Technology, 1996.
- Second prize in the 1992's mathematical model contest of Chinese undergraduate students, 1992.
- Guanghua scholarship for excellent students, University of Inner Mongolia, 1991–1993.
- Scholarship for outstanding academic performance, University of Inner Mongolia, 1989–1993.

## PROFESSIONAL AFFILIATIONS

- American Mathematical Society, since Sep. 1998.
- Society for Industrial and Applied Mathematics, since Oct. 2001.

## COMPUTER SKILLS

- Operating systems: Unix/Linux and Windows.
- Programming languages: FORTRAN 77/90, C/C++, Matlab, Mathematics, Maple, CGI-PERL, JAVA and SQL.

## REFERENCES

- Professor Bernardo Cockburn, School of Mathematics, University of Minnesota. Phone: (612)625-2587, Email: cockburn@math.umn.edu.
- Professor Lawrence Gray, School of Mathematics, University of Minnesota. Phone: (612)625-5591, Email: gray@math.umn.edu. (Teaching reference)
- Professor Robert Gulliver, School of Mathematics, University of Minnesota. Phone: (612) 625-1560, Email: gulliver@math.umn.edu.
- Professor Fernando Reitich, School of Mathematics, University of Minnesota. Phone: (612)626-1324, Email: reitich@math.umn.edu.
- Professor Fadil Santosa, School of Mathematics, University of Minnesota. Phone: (612) 626-0528, Email: santosa@math.umn.edu.