

# Stefan E. Atev

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- EDUCATION**      **University of Minnesota**      Minneapolis, MN  
Ph.D., Computer Science (expected 2010)  
*Dissertation topic: “Kernels for Trajectories and Time Series”*  
M.S., Computer Science (May 2007)  
Advisor: Nikolaos Papanikolopoulos; GPA 4.0  
*Honors & Activities:*
- Best Paper award for “Kernel Spectral Curvature Clustering (KSCC)” in ICCV 2009 Workshop on Dynamical Vision (Kyoto, Japan)
  - Finalist, ACM World Programming Finals 2004 (Prague, Czech Rep.)
  - Chair, ITSC 2004 Systems Monitoring session (Washington, DC)
- Luther College**      Decorah, IA  
B.A., *summa cum laude* (July 2003)  
Computer Science and Mathematics  
*Honors & Activities:*
- Phi Beta Kappa, Sigma Pi Sigma, Pi Mu Epsilon
  - Meritorious, 2002 COMAP Mathematical Modeling Competition
  - Finalist, ACM World Programming Finals 2001 (Vancouver, BC)
- RESEARCH INTERESTS**      Medical imaging, kernel methods for machine learning, image processing, Real-time computer vision systems (frame-rate vision), high-performance scientific computing.
- PUBLICATIONS**      S. Atev, G. Miller, and N. Papanikolopoulos, “Clustering of Vehicle Trajectories”, *to appear in IEEE Trans. Intelligent Transportation Systems*, 2010.
- J. Hellinger, S. Atev, and M. Epelman, “Low Dose Chest CT Angiography (CTA): Improved Image Quality with a Novel Noise Reduction Algorithm”, *Pediatric Radiology*, vol. 40, no. 4, pp. 561–562, Apr. 2010.
- G. Chen, S. Atev, and G. Lerman, “Kernel Spectral Curvature Clustering (KSCC)”, *Proc. IEEE Int’l Conf. Computer Vision (ICCV 2009)*, pp. 765–772, Sep. 2009.
- E. Ribnick, S. Atev, and N. Papanikolopoulos, “Estimating 3D Positions and Velocities of Projectiles from Monocular Views”, *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 31, no. 5, pp. 938–944, May 2009.
- G. Miller, S. Atev, and N. Papanikolopoulos, “Detecting Static Occlusion Edges Using Foreground Patterns”, *Proc. Mediterranean Conf. Control and Automation (MED 2009)*, pp. 952–957, June 2009.
- S. Atev and N. Papanikolopoulos, “Multi-View 3D Vehicle Tracking with a Constrained Filter”, *Proc. IEEE Conf. Robotics and Automation (ICRA 2008)*, pp. 2277–2282, May 2008.
- E. Ribnick, S. Atev, O. Masoud, N. Papanikolopoulos, and R. Voyles, “Detection of Thrown Objects in Indoor and Outdoor Scenes”, *Proc. IEEE/RSJ Int’l Conf. Intelligent Robots and Systems (IROS 2007)*, pp. 979–984, Oct. 2007.
- A. Joshi, S. Atev, O. Masoud, and N. Papanikolopoulos, “Moving Shadow Detection with Low- and Mid-Level Reasoning”, *Proc. IEEE Conf. Robotics and Automation (ICRA 2007)*, pp. 4827–4832, Apr. 2007.

- H. Veeraraghavan, N. Bird, S. Atev, and N. Papanikolopoulos, "Classifiers for Driver Activity Monitoring", *Transportation Research Part C: Emerging Technologies*, vol. 15, no. 1, pp. 51–67, Feb. 2007.
- E. Ribnick, S. Atev, O. Masoud, N. Papanikolopoulos, and R. Voyles, "Real-Time Detection of Camera Tampering", *Proc. IEEE Int'l Conf. Advanced Video and Signal based Surveillance (AVSS 2006)*, Nov. 2006.
- S. Atev, O. Masoud, and N. Papanikolopoulos, "Learning Traffic Patterns at Intersections by Spectral Clustering of Motion Trajectories", *Proc. IEEE/RSJ Int'l Conf. Intelligent Robots and Systems (IROS 2006)*, pp. 4851–4856, Oct. 2006.
- N. Bird, S. Atev, N. Caramelli, R. Martin, O. Masoud, and N. Papanikolopoulos, "Real-Time, Online Detection of Abandoned Objects in Public Areas", *Proc. IEEE Conf. Robotics and Automation (ICRA 2006)*, pp. 3775–3780, May 2006.
- S. Atev, H. Arumugam, O. Masoud, R. Janardan, and N. Papanikolopoulos, "A Vision-Based Approach to Collision Prediction at Traffic Intersections", *IEEE Trans. Intelligent Transportation Systems*, vol. 6, no. 4, pp. 416–423, Dec. 2005.
- H. Veeraraghavan, S. Atev, N. Bird, P. Schrater, and N. Papanikolopoulos, "Driver Activity Monitoring through Supervised and Unsupervised Learning", *Proc. IEEE Conf. Intelligent Transportation Systems (ITSC 2005)*, pp. 895–900, Sep. 2005.
- S. Atev, O. Masoud, R. Janardan, and N. Papanikolopoulos, "A Collision Prediction System for Traffic Intersections", *Proc. IEEE/RSJ Int'l Conf. Intelligent Robots and Systems (IROS 2005)*, pp. 2844–2849, Aug. 2005.
- S. Atev, O. Masoud, and N. Papanikolopoulos, "Practical Mixtures of Gaussians with Brightness Monitoring", *Proc. IEEE Conf. Intelligent Transportation Systems (ITSC 2004)*, pp. 423–428, Oct. 2004.

PEER  
REVIEW

Served as a reviewer for the following journals and conferences: *Image and Vision Computing Journal*, *J. Intelligent and Robotic Systems*, *IEEE Trans. Intelligent Transportation Systems*, *Transportation Research Record: J. Transportation Research Board*, *IEEE Int'l Conf. Advanced Video and Signal Based Surveillance (AVSS)*, *IEEE Conf. Robotics and Automation (ICRA)*, *IEEE Conf. Intelligent Transportation Systems (ITSC)*, *IEEE/RSJ Int'l Conf. Intelligent Robots and Systems (IROS)*.

WORK  
EXPERIENCE

- Vital Images, Inc.** Minnetonka, MN  
*Senior Scientist, Algorithm Development* Mar. 2010 – present  
*Scientist, Algorithm Development* Jun. 2008 – Feb. 2010
- Reserach methods for diffeomorphic nonlinear registration in body perfusion and longitudinal clinical applications.
  - Develop a general, edge-preserving volumetric denoising algorithm for CT and MR.
  - Implement a parallel, lock-free marching cubes algorithm for a 3D object editing tool.
  - Responsible for all aspects of CT Brain Perfusion application, including validation, maintenance of legacy code, and novel research.
  - Optimize low-level volume processing algorithms for multi-core architectures.
  - Develop novel algorithms for deconvolution in brain, body, and myocardial perfusion.
- University of Minnesota** Minneapolis, MN  
*Research Assistant* Jan. 2004 – May 2008
- Designed and implemented a computer vision system for real-time distributed video surveillance and threat assesment at mass transit sites.
  - Created vision algorithms for traffic monitoring/automated data collection.
  - Developed vision methods for in-car driver distraction detection.
- Vital Images, Inc.** Minnetonka, MN  
*Scientist Intern, Algorithm Group* May 2007 – Aug. 2007

- Designed a generic separable filter framework for volumetric data.
- Improved performance of 3D binary morphology and CT brain perfusion routines.
- Created an initial prototype of a colon polyp detection system and investigated false-positive reduction methods.

**University of Minnesota**

Minneapolis, MN

*Teaching Assistant*

Sep. 2003 – Dec. 2003

- Prepared and led weekly recitations for CSci 2011 “Numerical Methods.”
- Assisted students with course material during office hours and graded assignments.

**IBM, Internet Technology Group**

Cambridge, MA

*Programmer*

Sep. 2001 – Jul. 2003

- Designed an RDF browser for life sciences data and demonstrated it at BioIT 2003.
- Developed a reference implementation of the OMG Life Science Identifiers specification.
- Exposed the SwissProt, LocusLink and PDB databases as LSID web services.
- Created support modules for using XPCOM (cross-platform COM) with Java.
- Implemented an IDL compiler targeting Java and a Java interface decompiler.

**Luther College, Psychology Dept.**

Decorah, IA

*Staff Programmer*

Jan. 2000 – Dec. 2003

- Developed applications for psychological experiments.
- Maintained departmental network and computer lab.
- Designed applications for the statistical analysis of experimental data.

**IBM, Extreme Blue Internship Program**

Cambridge, MA

*Programmer, SashXB team*

Jun. 2001 – Aug. 2001

- Designed an Integrated Development Environment for JavaScript.
- Developed a component framework for rapid application development on Linux.
- Integrated RAD components with the Mozilla and GNOME projects.

COMPUTER  
SKILLS

**Languages**

C++, Matlab, x86 assembly, C, Java, C#, Object Pascal, Perl

**Technologies**

OpenMP, IPL/IPP, JNI, GTK+, RDF, XPCOM, SWT, SOAP/WSDL