

# VITALY ABLAVSKY

Systems & Technology Research  
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## *Education*

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|-----------|---|
| Mar. 2011 | Ph.D., Computer Science, Boston University<br><i>Thesis: Layered Graphical Models for Tracking Partially-Occluded Moving Objects in Video</i> |
| Feb. 1996 | M.S., Computer Science, University of Massachusetts at Amherst  |
| May 1992  | B.A., Mathematics (cum laude), Brandeis University  |

## *Research expertise*

- Technical background
  - image processing: motion estimation, video compression
  - computer vision: video analysis and event recognition, object detection, person detection and tracking, video surveillance, 3D biomedical image analysis
  - machine learning: graphical models, classification, transfer learning/domain adaptation
- Expertise established as part of independent and collaborative research
  - layered (2.5D) scene representation; person tracking in the presence of relocatable occluders
  - multi-target tracking with deterministic and stochastic methods
  - object detectors parameterized in latent space
  - optimization of histogram kernels for action classification
  - behavior analysis in team sports with conditional random fields
  - multi-task learning with applications to structure recognition in 3D brain imagery
- Publications and presentations
  - publishes in journals and conferences, including top-tier venues ([see pdf online](#))
  - presents at academic venues and to funding agencies
- Procurement of funding
  - identifies funding opportunities; recruits industrial and academic partners
  - writes winning Small-Business Innovation Research (SBIR) grants ([see pdf online](#))

## *Software-engineering expertise*

- Proven record architecting, developing, testing, and deploying general-purpose scientific-computing frameworks and optimized special-purpose systems; focus on object- and pattern-oriented architecture
- Proven record of leadership: establishes technical direction, communicates effectively, recruits and mentors team members; strongly focused on team success
- Tools
  - system building: C++11 with GCC 4.8.x and VisualStudio 2015
  - prototyping: Python 2.7 and MATLAB (including interfaces to C (MEX), Java, MATLAB server)
  - machine learning and image analysis: scikit-learn, Theano, Dlib, OpenCV, ITK, ImageJ/Fiji
  - SCM: Git, AccuRev, ClearCase

## *Academic experience and community service*

- teaching fellow: undergraduate/graduate course in machine learning; undergraduate/graduate course in artificial intelligence; and undergraduate course in C# programming for the .NET platform
- co-advisor for Ph.D. research assistants as well as M.S. students and interns
- co-organizer of research colloquiums; captain of student volunteers for AVSS 2010
- reviewer for AVSS, CIVR, CVPR, ECCV, FUSION, ICCV, ICPR, IJPRAI, NIPS, PAMI, and VSSN

## *Professional appointments*

- 2014 - present    **Systems & Technology Research** (<http://www.stresearch.com>)  
*Senior Member of Technical Staff, Video & Image Understanding group*
- Developing algorithms for object detection, recognition, and tracking
- 2011 - 2014    **EPFL (Swiss Federal Institute of Technology)** (<http://cvlab.epfl.ch>)  
*Post-doctoral Researcher in the Computer Vision Laboratory*
- Developed algorithms to recognize players' behavior in team sports
  - Developed transfer-learning algorithms to improve structure recognition in 3D electron-microscope images
- 2005 - 2011    **Computer Science Dept., Boston University** (<http://www.bu.edu/cs/ivc>)  
*Research Assistant in the Image and Video Computing Laboratory*
- Conducted thesis work on layered representations and multi-object tracking under occlusions
  - Conducted research on optimizing histogram kernels for action recognition
  - Collaborated on the development of parameter-sensitive object detectors
- 1999 - 2005    **Charles River Analytics, Inc.** (<http://www.cra.com>)  
*Senior Software Engineer, then Principal Research Engineer, Sensor Processing Division*
- Initial responsibilities: implemented path-planning and automated-target-recognition algorithms
  - Responsibilities assumed through own initiative:
    - led the design and development of advanced computer-vision solutions for DARPA and DoD: video enhancement, target tracking, gesture recognition
    - wrote and co-wrote winning Phase I and follow-on Phase II proposals
    - designed and co-implemented VisionKit v.1.0
    - actively participated in recruiting and mentoring junior colleagues
- 1998 - 1999    **Cognex Corporation** (<http://www.cognex.com>)  
*Software Engineer in the Vision Tools and Applications Group*
- Designed and implemented machine-vision algorithms for high-accuracy inspection and industrial robot guidance
  - Delivered complete vision applications running on NT and special-purpose hardware accelerators
  - Worked with and contributed to a large-scale C++ framework
  - Wrote unit and system tests; participated in QA and release engineering
- 1996 - 1998    **Amerinex Applied Imaging, Inc./ADCIS, SA** (<http://www.adcis.net>)  
*Senior Software Engineer, Project Aphelion*
- Primary development: Aphelion (an image processing and understanding environment)
  - Designed and implemented low- and intermediate-level vision algorithms with applications to fiber microscopy, medical imaging, 3D object recognition, etc.
  - Implemented driver interfaces to PCI frame-grabbers; assisted technical writers
- 1993 - 1996    **Computer Science Dept., UMass Amherst** (<http://vis-www.cs.umass.edu>)  
*Research Assistant in the Computer Vision Laboratory*
- Developed a shape-from-shading algorithm for specular surface reconstruction
  - Built a VME-based image acquisition system to control multiple Kodak M1.6s

## *Honors and professional societies*

B.A. cum laude with honors (Department of Mathematics); Member IEEE, IEEE Computer Society

## *Personal info*

Citizenship: US