

Education

Ph.D in Computer Science Fall 2007 – Present (Expected: Summer 2013)
 University of Maryland, College Park, MD
 Dissertation: Towards Data-Driven Large-Scale Scientific Visualization and Exploration
 Advisor: Amitabh Varshney

B.S. and M.S. in Computer Science June 2005
 GPA: 3.91 *Summa Cum Laude (1st class Honor)*
 Drexel University, Philadelphia, PA
 Master's Thesis: Automatic Classification of CAD Models
 Advisor: William C. Regli

Experience

Graduate Research Assistant September 2007 – Present
 Graphics and Visual Informatics Lab
 University of Maryland, College Park, MD

- Research on data-driven visualization and exploration for very large datasets
- Research on visual saliency and summary for molecular simulations

Research Software Engineer May 2005 – July 2007
 Computer Integrated Manufacturing Lab
 University of Maryland, College Park, MD

- Develop 3D point-cloud-based inspection software
- Improve the measurement accuracy of a structured light 3D scanner
- Develop accurate 3D reconstruction and registration algorithms using a laser stripe and a CMOS camera

Research Assistant April 2000 – April 2005
 Geometric and Intelligent Computing Laboratory
 Drexel University, Philadelphia, PA

- Research on machine learning and data mining applications to CAD classification
- Develop CAD customized database schema and datatype with PostgreSQL
- Program Honeywell FB-Mach to automate machining feature data gathering
- Linux/Windows/Solaris cross platform system administration

Teaching Assistant March 2001 – June 2001
 Mathematics and Computer Science Department
 Drexel University, Philadelphia, PA
 Responsible for designing, grading assignments and helping students for the Database Theory class.

Honors

Best Paper Award October 2012
 IEEE Visweek SciVis 2012
 Hierarchical Exploration of Volumes Using Multilevel Segmentation of the Intensity-Gradient Histograms

Honorable Mention for the Best Paper Award October 2011
 IEEE Visweek Vis 2011
 Saliency-Assisted Navigation of Very Large Landscape Images

Block Fellowship 2007 – 2009
 Department of Computer Science, University of Maryland

Outstanding Undergraduate Researcher Honorable Mention December 2003
 Computing Research Association
 (There were 78 winners and honorable mentions across USA and Canada)

<i>Undergraduate Poster Winner</i> University Research Day, Drexel University, PA “CAD Cabinet: A Digital Filesystem for CAD” B. Grooters, C. Y. Ip , S. Kwak, K. H. Kwan, and R. Lass	May 2003
<i>Undergraduate Poster Honorable Mention</i> University Research Day, Drexel University, PA “Automated Learning of Classifications for Engineering Design” C. Y. Ip , W. C. Regli, L. Sieger, and A. Shokoufandeh	May 2003
<i>Undergraduate Student Research Award</i> College of Engineering, Drexel University, PA	February 2003
<i>Member</i> Upsilon Pi Epsilon, Honor Society in the Computing and Information Disciplines	February 2002
<i>Academic Dean’s List</i> Drexel University, PA	September 1999 – April 2005

Journal Publications

1. Parallel Geometric Classification of Stem Cells by their 3D Morphology
D. Juba, A. Cardone, **C. Y. Ip**, C. G. Simon Jr., C. K. Tison, G. Kumar, M. Brady, and A. Varshney
Computational Science & Discovery, to appear.
2. Hierarchical Exploration of Volumes Using Multilevel Segmentation of the Intensity-Gradient Histograms
C. Y. Ip, A. Varshney, and J. JaJa
IEEE Transactions on Visualization and Computer Graphics, 18(12): 2355–2363, 2012 (Impact Factor: 2.22)
Best Paper Award in IEEE Visweek SciVis 2012
3. Saliency-Assisted Navigation of Very Large Landscape Images
C. Y. Ip and A. Varshney
IEEE Transactions on Visualization and Computer Graphics, 17(12): 1737–1746, 2011 (Impact Factor: 2.22)
Honorable Mention for the Best Paper Award in IEEE Visweek Vis 2011 (1 of the 3 best paper finalists)
4. Social Snapshot: A System for Temporally Coupled Social Photography
R. Patro, **C. Y. Ip**, S. Bista, and A. Varshney
IEEE Computer Graphics and Applications, 31(1): 74–84, 2011 (Impact Factor: 1.41)
5. Retrieving Matching CAD Models by Using Partial 3D Point Clouds
C. Y. Ip and S. K. Gupta
Computer-Aided Design and Applications, 4(5):629-638, 2007
6. Classification of 3D Objects Based on Manufacturing Process
C. Y. Ip and W. C. Regli
Computers & Graphics, 30(6): 903–916, 2006 (Impact Factor: 1.00)
7. Content-based Classification of CAD Models with Supervised Learning
C. Y. Ip and W. C. Regli
Computer-Aided Design and Applications, 2(5): 609–618, 2005

Conference Publications

1. PixelPie: Maximal Poisson-disk Sampling with Rasterization
C. Y. Ip, M. A. Yalcin, D. Luebke, and A. Varshney
High Performance Graphics, 2013
2. MDMap : A System for Data-Driven Layout and Exploration of Molecular Dynamics Simulations
R. Patro, **C. Y. Ip**, S. Bista, S. S. Cho, D. Thirumalai, and A. Varshney
IEEE Symposium on Biological Data Visualization, 111–118, 2011
3. Salient Frame Detection for Molecular Dynamics Simulations
Y. Kim, R. Patro, **C. Y. Ip**, D. P. O’Leary, A. Anishkin, S. Sukharev, and A. Varshney
Dagstuhl Follow-Ups: Scientific Visualization: Interactions, Features, Metaphors, 160–175, 2011
4. Saliency Guided Summarization of Molecular Dynamics Simulations
R. Patro, **C. Y. Ip**, and A. Varshney
Dagstuhl Follow-Ups: Scientific Visualization: Advanced Concepts, 321–335, 2010

5. Manufacturing Processes Recognition of Machined Mechanical Parts Using SVMs
C. Y. Ip and W. C. Regli
AAAI Conference on Artificial Intelligence, 1608–1609, 2005
6. Manufacturing Classification of CAD Models Using Curvature and SVMs
C. Y. Ip and W. C. Regli
IEEE International Conference on Shape Modeling and Applications, 361–65, 2005
7. Benchmarking CAD Search Techniques
D. Bespalov, **C. Y. Ip**, W. C. Regli, and J. Shaffer
ACM Symposium on Solid and Physical Modeling, 275–286, 2005
8. Automated Learning of Model Classifications
C. Y. Ip, W. C. Regli, L. Sieger, and A. Shokoufandeh
ACM Symposium on Solid Modeling and Applications, 322–27, 2003
9. Using Shape Distribution to Compare Solid Models
C. Y. Ip, D. Lapadat, L. Sieger, and W. C. Regli
ACM Symposium on Solid Modeling and Applications, 273–80, 2002
135 Citations on Google Scholar

Workshop Publications

1. How to Pick the Right Shape Matching Algorithm for Your CAD Data
W. C. Regli, A. Shokoufandeh, **C. Y. Ip**, and D. Bespalov
DIMACS Workshop on Computer-Aided Design and Manufacturing, 2003
2. National Design Repository Project: A Status Report
W. C. Regli, C. Foster, E. Hayes, **C. Y. Ip**, D. McWherter, M. Peabody, Y. Shapirsteyn, and V. Zaychik
Int'l Joint Confs. on Artificial Intelligence (IJCAI) AAAI/SIGMAN Workshop on AI in Manufacturing Systems, 2001

Patents

1. Method, system and apparatus for determining and modifying saliency of a visual medium, US8243068
A. Varshney, Y. Kim, and **C. Y. Ip**
2. Automated learning of model classifications, US7889914
W. C. Regli, **C. Y. Ip**, and L. Sieger

Professional Service

Reviewer

IEEE Transactions on Visualization and Computer Graphics, ACM SIGGRAPH, EuroVis, Journal of Computer-Aided Design

Assistant to the Paper Chairs

InPar 2012

Student Peers Panelist

Computer Science Graduate Student Orientation, University of Maryland 2012

Student Volunteer

i3D 2010, AAAI 2004