

# ALI MAHDAVI-AMIRI

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## EDUCATION

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<b>University of Calgary</b> Ph.D. in Computer Science Thesis: Atlas of Connectivity Maps for Semiregular Models	<i>Sep 2009-Apr 2015</i>
<b>Sharif University of Technology</b> M.Sc. in Computer Science	<i>Sep 2006-Aug 2009</i>
<b>Ferdowsi University of Mashhad</b> B.Eng. in Computer Engineering	<i>Sep 2001-Aug 2006</i>

## HONORS, AWARDS, AND NOMINATIONS

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- **NSERC Postdoctoral Fellowship** *Mar 2016*  
*90,000 \$ over two years.*
- **J.B. Hyne Research Innovation Award** *Jul 2014*  
*Granted to up to four graduate students each year in the entire university.*
- **Faculty of Graduate Studies Travel Award** *Jun 2014*
- **Michael A. J. Sweeney Award** *May 2013*  
*Graphics Interface 2013, Best Student Paper.*
- **Research Assistant Award** *Sep 2012*
- **Departmental Teaching Excellence Award** *Apr 2011*  
*CPSC 413 (Design and Analysis of Algorithms).*
- **Nominated for Departmental Teaching Excellence Award** *Apr 2014*  
*Nominated by Department for CPSC 453 (Computer Graphics).*
- **Nominated for Students' Union Teaching Excellence Award** *Apr 2011*  
*Nominated by Students for CPSC 413 (Design and Analysis of Algorithms).*
- **Rank 5 of the Graduate Entrance Examination for M.Sc.** *Sep 2006*  
*Among more than 4000 candidates.*

## RESEARCH INTERESTS

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- **Geometric Modeling**
- **3D Prints and Fabrication**
- **Geospatial Modeling and Visualization**

## SELECTED PUBLICATIONS

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### *Refereed Journal Publications*

- Alderson, T., **Mahdavi-Amiri, A.**, and Samavati, F.F., “RIAS: Repeated Invertible Averaging for Surface Multiresolution of Arbitrary Degree”, *Computer Graphics Forum*, 2017. [Accepted with Revisions]. (Impact Factor: 1.542)
- Djavaheerpour, H., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Physical Visualization of Geospatial Datasets”, *IEEE Computer Graphics and Applications* (Special Issue on Computational Design and Fabrication Meet Computer Graphics), 2016. [To Appear]. (Impact Factor: 1.203)
- Bartels, R., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Diagrammatic Approach for Constructing Multiresolution of Primal Subdivisions”, *Computer Aided Geometric Design*, 2016. [To Appear]. (Impact Factor: 1.554)
- Alderson, T., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Multiresolution on Spherical Curves”, *Graphical Models*, 2016. (Impact Factor: 1.049)
- **Mahdavi-Amiri, A.**, Harrison, E., and Samavati, F.F., “Hierarchical Grid Conversion”, *Computer Aided Design*, 2016. (Impact Factor: 1.801)
- **Mahdavi-Amiri, A.**, Alderson, T., and Samavati, F.F., “A Survey of Digital Earth”, *Computers & Graphics*, 2016. (Impact Factor: 1.029), [Invited for Oral Presentation in GI 2016], [Used as a Reference for OGC Standard on DGGS].
- **Mahdavi-Amiri, A.**, Harrison, E., and Samavati, F.F., “Hexagonal Connectivity Maps for Digital Earth”, *International Journal of Digital Earth*, 2015. (Impact Factor: 2.212)
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “Atlas of Connectivity Maps”, *Computers & Graphics*, 2014. (Impact Factor: 1.029)
- **Mahdavi-Amiri, A.**, Peterson, P., and Samavati, F.F., “Categorization and Conversions for Indexing Methods of Discrete Global Grid Systems”, *ISPRS International Journal of Geoinformation*, 2014. (Impact Factor: 0.651)
- Harrison, E., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Analysis of Inverse Snyder Optimization”, *Transactions on Computational Science XVI*, 2012.

### *Refereed Conference Publications*

- Jubair, M., Alim, U., Roeber, N., Clyne, J., and **Mahdavi-Amiri, A.**, “Icosahedral Maps for a Multiresolution Representation of Earth Data”, *21st International Symposium of Vision, Modelling, and Visualization (VMV)*, 2016.
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “Adaptive Atlas of Connectivity Maps”, *Curves and Surfaces*, 2015.

- **Mahdavi-Amiri, A.**, Whittingham, P., and Samavati, F.F., “Cover-it: An Interactive System for Covering 3D Printed Objects”, *Graphics Interface*, 2015.
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “ACM: Atlas of Connectivity Maps for Semiregular Models”, *Graphics Interface*, 2015. [**Best Student Paper Award**].
- **Mahdavi-Amiri, A.**, Bhojani, F., and Samavati, F.F., “One-to-Two Digital Earth”, *9th International Symposium on Visual Computing*, 2013.
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “Connectivity Maps for Subdivision Surfaces”, *GRAPP*, 2012. [Full Paper, Acceptance Rate: 17%]
- Harrison, E., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Optimization of Inverse Snyder Polyhedral Projection”, *Cyberworlds*, 2011.

### *Posters*

- Jubair, M., Alim, U., Niklas Rober, John Clyne, **Mahdavi-Amiri, A.**, and Samavati, F.F., “A Hexagonal Box Spline Wavelet for Multiresolution Visualization of Digital Earth Data”, *IEEE Vis*, 2015.
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “ACM: Atlas of Connectivity Maps for Semiregular Models”, *GRAND NCE*, 2013.

### *Refereed Extended Abstracts*

- Tripathi, G., Sherlock, M., **Mahdavi-Amiri, A.**, and Samavati, F.F., “Wavelet Transforms for Managing Landsat Data Sets on a Geospatial Client-Server System”, *American Geophysical Union (AGU)*, 2016.
- **Mahdavi-Amiri, A.**, Shatz, I., Moltaji, A., and Samavati, F.F., “Data Transmission in Discrete Global Grid Systems”, *International Symposium on Digital Earth*, 2015.
- Samavati, F.F., **Mahdavi-Amiri, A.**, Alderson, T., “A Taxonomy of Discrete Global Grid Systems”, *International Symposium on Digital Earth*, 2015.
- **Mahdavi-Amiri, A.**, and Samavati, F.F., “Adaptive Atlas of Connectivity Maps”, *Curves and Surfaces*, 2014.

### *Submitted Publications*

- Yu, F., Zhang, Y., Xu, K., **Mahdavi-Amiri, A.**, Zhang, H., “Learning to Locate Style Elements on 3D Shapes via Projective Analysis”, *SIGGRAPH*, 2017.
- **Mahdavi-Amiri, A.**, Alderson, T., and Samavati, F.F., “Data Management Possibilities for Aperture 3 Hexagonal Discrete Global Grid Systems”, *ACM Transactions on Spatial Algorithms and Systems*, 2017.

## REVIEW AND REFEREE

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### *Journals*

- **Computers & Graphics** *2010-Present*  
*Reviewer.*
- **The Visual Computer** *2016-Present*  
*Reviewer.*
- **Journal of Computer Graphics Techniques** *2013-Present*  
*Reviewer.*
- **International Journal of Digital Earth** *2014-Present*  
*Reviewer.*
- **International Journal of Geoinformation** *2014-Present*  
*Reviewer.*

### *Conferences*

- **Graphics Interface** *Feb 2015*  
*Reviewer.*
- **Graphics Interface** *Apr 2013*  
*Best Poster Award Selection Team,*  
*Poster Session.*
- **Eurographics** *Nov 2012*  
*Reviewer.*
- **Computer Graphics International** *Mar 2011*  
*Reviewer.*

## GRANTS

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- **NSERC Postdoctoral Fellowship** *2017-2019*  
*90,000 \$ over two years.*
- **NSERC CRD** *2015-2018*  
*Industrial Partner: PYXIS Innovation Inc.*  
*Principal Investigator: Dr. Faramarz Samavati.*
- **NSERC CRD** *2015-2018*  
*Industrial Partner: Circle Cardiovascular Imaging.*  
*Principal Investigator: Dr. Faramarz Samavati.*
- **NSERC CRD** *2011-2014*  
*Industrial Partner: PYXIS Innovation Inc.*  
*Principal Investigator: Dr. Faramarz Samavati.*

## VOLUNTEER SERVICES

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- **Review of Computer Engineering Studies** *2016-Present*  
*Editorial Board.*
- **Graduate Students Association (GSA)** *2011-2012*  
*Committee Member.* *(U of C)*
- **Computer Science Graduate Society (CSGS)** *2010-2011*  
*Lab Representative.* *(U of C)*
- **Graduate Students Association (GSA)** *2010-2011*  
*Awards Co-chair.* *(U of C)*
- **Internal Industry Collaboration Meeting** *2011-2016*  
*Coordinator.* *(U of C)*
- **Music Association** *2002-2003*  
*Committee Member.* *(Ferdowsi)*

## CERTIFICATES

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- **Instructional Skills Workshop (ISW)** *Jan 2013*  
*University of Calgary.*
- **University Teaching Certificate (UTC)** *Sep 2013*  
*University of Calgary.*
- **Image and video processing:  
From Mars to Hollywood with a stop at the hospital** *Mar 2016*  
*Coursera.*
- **Processes and Agile Practices** *Apr 2016*  
*Coursera.*
- **The Data Scientists Toolbox** *Apr 2016*  
*Coursera.*
- **Machine Learning** *Oct 2016*  
*Coursera.*

## TEACHING EXPERIENCE

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### *Instructor*

- **Modelling for Computer Graphics** . *Sep 2015*  
*University of Calgary.*  
[Students Evaluation](#),  
[Department's Head Evaluation](#),  
[Rate My Professor](#).

### *Teaching Assistant*

- **Modeling for Computer Graphics** *Fall 2011, 2012, 2014*  
*CPSC 589, University of Calgary,*  
*Instructor: Dr. Faramarz Samavati.*
- **Computer Graphics** *Fall 2013*  
*CPSC 453, University of Calgary,*  
*Instructor: Dr. Usman Alim,*  
*Nominated for Teaching Excellence Award.*
- **Design and Analysis of Algorithms I** *Winter 2011, 2012*  
*CPSC 413, University of Calgary,*  
*Instructor: Dr. Wayne Eberly,*  
*Teaching Excellence Award (Jan 2011).*
- **Techniques for Numerical Computations** *Fall 2009, 2010*  
*CPSC 491, University of Calgary,*  
*Instructor: Dr. Jon Rokne.*
- **Data Structures, Algorithms, and Their Analysis** *Winter 2010*  
*CPSC 331, University of Calgary,*  
*Instructor: Dr. Mario Costa Sousa.*
- **Techniques for Numerical Computations** *Fall 2008, Winter 2009*  
*Sharif University of Technology,*  
*Instructors: Dr. Saman Babaei-Kafaki (2008),*  
*Dr. Nezam Mahdavi-Amiri (2009).*

## MENTORSHIP EXPERIENCE

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- **Phillip Whittingham** *Jun 2013-Aug 2014*  
*University of Calgary.*  
*Undergraduate Project.*  
*Publication: [Mahdavi-Amiri, et.al., GI 2015].*
- **Faraz Bhojani** *Nov 2012-Jun 2013*  
*University of Calgary.*  
*Undergraduate Project.*  
*Publication: [Mahdavi-Amiri, et.al., ISVC 2013].*

## REFERENCES

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- **Dr. Przemyslaw Prusinkiewicz**  
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