

Mikhail Bessmeltsev

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My research interests are in computer graphics/vision area, including, but not limited to: sketch-based modeling, character animation, and geometry processing. I have done research in recovering 3D shape from 2D sketches.

Professional Experience

2016 – Now **Postdoctoral Associate (Computer Graphics)** – *Massachusetts Institute of Technology*, Cambridge, MA. Advisor: Dr. Justin Solomon

2010 – 2016 **Ph.D. in Computer Science (Computer Graphics)** – *University of British Columbia*, Vancouver, Canada, Supervisor: Dr. Alla Sheffer

Thesis title: **Recovering 3D Shape from Concept and Pose Drawings**

Activities:

- Developing novel algorithms in 3D modeling
- Prototyping new methods in C++ and Matlab
 - Geometry processing and generation tasks
 - Numerical optimization problems
 - Character rigging, skinning, and animation algorithms
- Writing and publishing papers
 - CAD and Human/character modeling
 - Character articulation
- Reading and implementing research papers in computer graphics & computer vision
- Designing and conducting user studies

2015 **Scientific Consultant** – *Digital Animal Interactive, Inc.*, Vancouver, Canada

Product website: <http://ftsy.co/>, supervisor: Ryan Smith

- Consulting on various Computer Vision problems - 3D scanning and reconstruction

Selected Publications

Isometry-Aware Preconditioning for Mesh Parameterization by Sebastian Claiaci, **Mikhail Bessmeltsev**, Scott Schaefer, and Justin Solomon. SGP 2017, London.

Gesture3D: Posing 3D Characters via Gesture Drawings by **Mikhail Bessmeltsev**, Nicholas Vining, Alla Sheffer. Cond. accepted to SIGGRAPH ASIA 2016

Recovering 3D Shape from Concept and Pose Drawings by **Mikhail Bessmeltsev**, Ph.D. thesis, 2016.

Modeling Character Canvases from Cartoon Drawings by **Mikhail Bessmeltsev**, Will Chang, Nicholas Vining, Alla Sheffer, Karan Singh, ACM Transactions on Graphics, Volume 34, Issue 5, Oct 2015

Design-Driven Quadrangulation of Closed 3D Curves by **Mikhail Bessmeltsev**, Caoyu Wang, Alla Sheffer, Karan Singh, ACM Transactions on Graphics (SIGGRAPH ASIA 2012), Volume 31, Issue 5, December 2012 (Acceptance rate: 24%)

Digital Micrography by Ron Maharik, **Mikhail Bessmeltsev**, Alla Sheffer, Ariel Shamir and Nathan Carr, ACM Transactions on Graphics (Proc. SIGGRAPH 2011), Volume 30, Number 4, July 2011 (Acceptance rate: 19%)

Education

2010 – 2016 **Ph.D. in Computer Science** – *University of British Columbia*

Completed graduate-level courses on machine learning, computer graphics, computer animation, computational geometry, numerical optimization, and others.

- 2008 – 2010** **M.Sc. in Applied Mathematics and Informatics** – *Novosibirsk State University*
 Mechanics and Mathematics Department Novosibirsk, Russia (**GPA: 4.82/5.0**),
 Supervisor: Olga Nechaeva
Thesis title: Generating moving meshes using Kohonen’s Self Organizing Maps
- 2004 – 2008** **B.Sc. in Applied Mathematics and Informatics** – *Novosibirsk State University* Mechanics
 and Mathematics Department, Novosibirsk, Russia (**GPA: 4.78/5.0**), Supervisor: O.
 Nechaeva

Awards

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|-------------|---|---|
| 2015 | (Nominated) UBC Killiam TA award | Computer Science department nomination |
| 2013 | Graduate TA award | <i>UBC Computer Science award for excellence in teaching</i> |
| 2010 | Best business plan | for CatchACloud, a laser scan processing software at <i>Provincial contest of business plans.</i> |
| 2007 | Intel Scholarship | One of ~ten recipients across Russia |
| 2007 | Excellence in studying | <i>Novosibirsk State University</i> |
| 2006 | Intel Scholarship | One of ~ten recipients across Russia |

Work Experience

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|------------------------|--|---|
| AISoftPro, LLC | Chief Technology Officer (CTO), co-founder | Full-time position
April 2009 – September 2010 |
| | <ul style="list-style-type: none"> ✓ Making executive-level decisions ✓ Presenting the project to potential investors ✓ Leading development of laser scan processing software | |
| Virartech, LLC | Project Manager | Part-time position
December 2008 – March 2009 |
| | <ul style="list-style-type: none"> ✓ Managing development of music-related software ✓ Teaching in-company courses on Object-Oriented Architecture and Design | |
| GoKillTime, LLC | Software Developer | Part-time position
July – December 2008 |
| | <ul style="list-style-type: none"> ✓ Game development for mobile platforms (iPhone, Android) | |

Relevant Activities

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| Intel-NSU High-Performance Systems Lab | Team Leader of Geometry Processing Group | 2008 – 2010 |
| | <ul style="list-style-type: none"> ✓ Supervising research of ten undergraduate and graduate students ✓ Managing the development of all the research software | |
| Intel-NSU High-Performance Computing School | School Coordinator | Winter 2010 |
| | <ul style="list-style-type: none"> ✓ Supervision of project leaders ✓ Assisting leaders and their teams with programming, team management | |
| Intel-NSU High-Performance Computing School | Project Leader of Monte-Carlo traffic simulator | Winter 2009 |
| | <ul style="list-style-type: none"> ✓ Project management | |