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 substantial research in recovering 3D shape from 2D sketches. I have a strong foundation in mathematics and I'm finishing my Ph.D. in computer science; I have three ACM TOG/SIGGRAPH publications. I'm looking for a position in research or R&D.

Professional Experience

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

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

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, to be published 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*,* presented at SIGGRAPH 2016

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%)

Parallel Construction of Moving Adaptive Meshes Based on Self-Organization by Olga Nechaeva and **Mikhail Bessmeltsev**// Berlin: Springer, Lecture Notes in Computer Science, PaCT 2007 proc. (V. Malyshkin, ed.), Vol. 4671, 2007, p. 589-598

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

The main focus of the thesis was to develop a markerless motion capture method from laser scan data using neural networks.

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

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

Work Experience

AISoftPro, LLC	**Full-time position**
Chief Technology Officer (CTO), co-founder	**April 2009 – September 2010**

- ✓ Making executive-level decisions
- ✓ Resolving science and technology related issues
- ✓ Presenting the project to potential investors
- ✓ Leading development of laser scan processing software
  - o > 100,000 lines of high-performance C++ code

Virartech, LLC	**Part-time position**
Project Manager	**December 2008 – March 2009**

- ✓ Managing development of music-related software
- ✓ Teaching in-company courses on Object-Oriented Architecture and Design

GoKillTime, LLC	**Part-time position**
Software Developer	**July – December 2008**

- ✓ Game development for mobile platforms (iPhone, Android)

Relevant Activities

Elsevier Computer-Aided Design	2015

- ✓ Reviewer

IEEE Transactions on Visualization and Computer Graphics	2014-2015

- ✓ Reviewer

Elsevier Computer Aided Geometric Design   **2012**
- ✓ Reviewer

Intel-NSU High-Performance Systems Lab
Team Leader of Geometry Processing Group   **2008 – 2010**
- ✓ 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**
- ✓ 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**
- ✓ Project management

Teaching Experience

University of British Columbia

Instructor, CPSC 314 – Computer Graphics   **2015**

    Revised, improved, and taught a complete undergraduate course

Teaching Assistant   **2010 – 2014**
- ✓ CPSC 314 Computer Graphics
- ✓ CPSC 213 Introduction to Computer Systems
- ✓ CPSC 259 Data Structures and Algorithms
- ✓ CPSC 424 Geometric Modeling
- ✓ CPSC 524 Digital Geometry Processing

    Lecturing, leading tutorials and lab sessions

Novosibirsk State University

Instructor, Undergraduate course on Geometry Processing   **2009 – 2010**
- ✓ Developed and taught a complete undergraduate course

Teaching assistant, Fine-Grained Parallelism and Cellular Automata   **2008**
- ✓ Designing and teaching lab sessions