Kenshi Takayama

October 2021

2-1-2 Hitotsubashi, Chiyoda-ku, 101-8430 Tokyo, Japan
takayama@nii.ac.jp
http://research.nii.ac.jp/~takayama/
https://github.com/kenshi84
https://bitbucket.org/kenshi84

Research Interests

- Computer graphics, user interface, geometry processing, volumetric modeling, texture synthesis, geometric modeling, mesh editing, animation, image editing

Academic Background

- **Assistant Professor, National Institute of Informatics** (September 2014 –)
- **Postdoctoral Fellow, ETH Zürich** (April 2014 – August 2014)
  Supervisor: Olga Sorkine-Hornung
- **JSPS Postdoctoral Fellow** (April 2012 – March 2014)
  Supervisor: Olga Sorkine-Hornung
- **Ph.D., The University of Tokyo** (April 2009 – March 2012)
  Advisor: Takeo Igarashi
  Thesis title: Volumetric Modeling of Natural Objects with Compact and Consistent Representations
- **M.Sc., The University of Tokyo** (April 2007 – March 2009)
  Advisor: Takeo Igarashi
  Thesis title: Lapped Solid Textures: Filling a Model with Anisotropic Textures
- **B.Sc., The University of Tokyo** (September 2006 – March 2007)
  Advisor: Takeo Igarashi
  Thesis title: Sketch Based Interface for Designing Volumetric Vector Fields

Journal Publications

- **Kenshi Takayama**. *Dual Sheet Meshing: An Interactive Approach to Robust Hexahedralization.* Computer Graphics Forum, 38(2) (proceedings of Eurographics), pp.37–48, 2019.
- Giorgio Marcias, **Kenshi Takayama**, Nico Pietroni, Daniele Panozzo, Olga Sorkine-Hornung, Enrico Puppo, and Paolo Cignoni. *Data-Driven Interactive Quadrangulation.* ACM Transactions on Graphics, 34(4) (proceedings of ACM SIGGRAPH), Article No.65, 2015.
- **Kenshi Takayama**, Daniele Panozzo, Olga Sorkine-Hornung. *Pattern-Based Quadrangulation for N-Sided Patches.* Computer Graphics Forum, 33(5) (proceedings of Eurographics Symposium on Geometry Processing), pp.177–184, 2014.
- **Kenshi Takayama**, Alec Jacobson, Ladislav Kavan, Olga Sorkine-Hornung. *A Simple Method for Correcting Facet Orientations in Polygon Meshes Based on Ray Casting.* Journal of Computer Graphics Techniques, 3(4), pp.53–63, 2014.
- **Kenshi Takayama**, Daniele Panozzo, Alexander Sorkine-Hornung, Olga Sorkine-Hornung. *Sketch-Based Generation and Editing of Quad Meshes.* ACM Transactions on Graphics, 32(4) (proceedings of ACM SIGGRAPH), Article No.97, 2013.
- Nobuyuki Umetani, **Kenshi Takayama**, Jun Mitani, Takeo Igarashi. *A Responsive Finite Element Method to Aid Interactive Geometric Modeling.* IEEE Computer Graphics and Applications, 31(5), pp.43–53, 2011.
- **Kenshi Takayama**, Ryan Schmidt, Karan Singh, Takeo Igarashi, Tamy Boubekeur, Olga Sorkine. *GeoBrush: Interactive Mesh Geometry Cloning.* Computer Graphics Forum, 30(2) (proceedings of Eurographics), pp.613–622, 2011.
- **Kenshi Takayama**, Olga Sorkine, Andrew Nealen, Takeo Igarashi. *Volumetric Modeling with Diffusion Surfaces.* ACM Transactions on Graphics, 29(6) (proceedings of ACM SIGGRAPH Asia), Article No.180, 2010.
- Takashi Ijiri, **Kenshi Takayama**, Hideo Yokota, Takeo Igarashi. *ProcDef: Local-to-global Deformation for Skeleton-free Character Animation.* Computer Graphics Forum, 28(7) (proceedings of Pacific Graphics), pp.1821–1828, 2009.
- **Kenshi Takayama**, Takashi Ashihara, Takashi Ijiri, Takeo Igarashi, Ryo Haraguchi, Kazuo Nakazawa. *A sketch-based interface for modeling myocardial fiber orientation that considers the layered structure of the ventricles.* The Journal of Physiological Sciences, 58(7), pp.487–492, 2008.
- Takashi Ijiri, Takashi Ashihara, Takeshi Yamaguchi, **Kenshi Takayama**, Takeo Igarashi, Tatsuo Shimada, Tsunetoyo Namba, Ryo Haraguchi, Kazuo Nakazawa. *A procedural method for modeling the Purkinje fibers of the heart.* The

Journal of Physiological Sciences, 58(7), pp.481–486, 2008.

- **Kenshi Takayama**, Makoto Okabe, Takashi Ijiri, Takeo Igarashi. *Lapped Solid Textures: Filling a Model with Anisotropic Textures.* ACM Transactions on Graphics, 27(3) (proceedings of ACM SIGGRAPH), Article No.53, 2008.

Conference Papers, Talks, Posters

- Yuki Koyama, **Kenshi Takayama**, Nobuyuki Umetani, Takeo Igarashi. *Real-Time Example-Based Elastic Deformation.* Symposium on Computer Animation (SCA), pp. 19–24, 2012.
- Nobuyuki Umetani, Jun Mitani, Takeo Igarashi, **Kenshi Takayama**. *Designing Custommade Metallophone with Concurrent Eigenanalysis.* New Interfaces for Musical Expression++, 2010.
- **Kenshi Takayama**, Takeo Igarashi. *Layered Solid Texture Synthesis from a Single 2D Exemplar.* ACM SIGGRAPH 2009 Posters.
- Makoto Okabe, **Kenshi Takayama**, Takashi Ijiri, Takeo Igarashi. *Light Shower: A Poor Man's Light Stage Built with an Off-the-shelf Umbrella and Projector.* ACM SIGGRAPH 2007 Sketches.
- **Kenshi Takayama**, Takeo Igarashi, Ryo Haraguchi, Kazuo Nakazawa. *A sketch-based interface for modeling myocardial fiber orientation.* Smart Graphics, pp. 1–9, 2007.

Technical Reports

- **Kenshi Takayama**, Alec Jacobson, Ladislav Kavan, Olga Sorkine-Hornung. *Consistently Orienting Facets in Polygon Meshes by Minimizing the Dirichlet Energy of Generalized Winding Numbers.* ETH Zurich, 2014.
- **Kenshi Takayama**, Daniele Panozzo, Alexander Sorkine-Hornung, Olga Sorkine-Hornung. *Robust and Controllable Quadrangulation of Triangular and Rectangular Regions.* ETH Zurich, 2013.

Awards, Scholarships, Fellowships

- JSPS Postdoctoral Fellowship for Research Abroad: April 2012 – March 2014
- JSPS Fellowship DC1: April 2009 – March 2012
- NICOGRAPH International CG Awards: March 2009

Research Visits

- **Dynamic Graphics Project (DGP), University of Toronto** (August 2011 – November 2011)
  Host: Prof. Karan Singh
  Funding: Overseas Visit Program, Graduate School of Information Science and Technology, The University of Tokyo
- **VLG group, New York University** (March 2010 – September 2010)
  Host: Prof. Olga Sorkine
  Funding: JSPS Excellent Young Researchers Overseas Visit Program
- **VLG group, New York University** (March 2009 – June 2009)
  Host: Prof. Olga Sorkine

Invited Talks

- *Sketch-based interfaces for computer graphics content creation*
  JSPS UK/Japan Symposium on Computer Graphics and Virtual Reality (November 2014)
- *Interactive 3D Modeling: Surfaces and Volumes*
  Autodesk Research, hosted by Ryan Schmidt (November 2011)
- *Interactive 3D Modeling: Surfaces and Volumes*
  University of Toronto, hosted by Prof. Karan Singh (September 2011)
- *Volumetric Modeling of Internal Textures and Structures*
  University of Manitoba, hosted by Prof. James Young (August 2011)
- *Volumetric Modeling of Internal Textures and Structures*
  University of Calgary, hosted by Prof. James Young (June 2010)
- *Volumetric Modeling of Internal Textures and Structures*
  Harvard University, hosted by Prof. Hanspeter Pfister (May 2010)
- *3D Modeling of Internal Structures*
  New York University, hosted by Prof. Olga Sorkine (March 2009)

Academic Service

- **International Program Committee**:

Eurographics: 2015, 2017, 2018, 2019, 2021
Eurographics Short Papers: 2013
Pacific Graphics: 2016
Symposium on Geometry Processing: 2016, 2018, 2019, 2020, 2021
Computer Graphics International: 2019
Shape Modeling International: 2014, 2015, 2016
Expressive: 2016
Virtual Reality Software and Technology: 2014, 2018, 2019
CAD/Graphics: 2015, 2017, 2021

- **Reviewer**:
ACM SIGGRAPH
ACM SIGGRAPH Asia
Eurographics
Eurographics Short Papers
Computer Graphics Forum
IEEE Transactions on Visualization and Computer Graphics
IEEE Transactions on Multimedia
IEEE Computer Graphics and Applications
Shape Modeling International
Pacific Graphics
Graphics Interface
Virtual Reality Software and Technology
The Visual Computer
Computer-Aided Design
Graphical Models
CAD and Applications
CAD/Graphics
Computers & Graphics
Graphical Models
IEICE Transactions
Journal of Computer Science and Technology
Journal of Zhejiang University-SCIENCE C
Transactions on Systems, Man, and Cybernetics–Part A

Work Experience

- **Research Assistant** (October 2008 – February 2009)
JST ERATO Igarashi Design Interface Project, Japan
- **Chief Developer** (April 2007 – December 2007)
Information-technology Promotion Agency (IPA) Exploratory Software Project, Japan

References

- **Olga Sorkine-Hornung** (Postdoc supervisor, 2012–2014)
Assistant Professor
Department of Computer Science
ETH Zurich
CNB G 106
Universtitaetstrasse 6
8092 Zurich, Switzerland
+ 41 44 632 83 57
`sorkine@inf.ethz.ch`
- **Takeo Igarashi** (Undergraduate and graduate research advisor, 2006–2012)
Professor
Department of Computer Science
The University of Tokyo
Science bldg. 7, room 303
7-3-1 Hongo, Bunkyo-ku
Tokyo, 113-0033 JAPAN
+81-3-5841-4109
`takeo@acm.org`