

jonathan denning

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Department Co-chair
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interests

Creation and editing workflows

- Computer graphics: 3D artist tool development and appearance editing
- Computer science: code design and editing

Alternative visualization techniques

- Accelerated, efficient, and artist-friendly ray marching
- Aperiodic tiled textures

education

Ph.D., Computer Science, Dartmouth College

June 2014

- Focus: computer graphics, 3D artist content creation and design workflows
- Advisor: Dr. Fabio Pellacini (Sapienza University of Rome)
- Thesis: ModFlows: Methods for Studying and Managing Mesh Editing Workflows
- Enrolled in MS Program, F09; transferred to PhD Program Summer 2010

B.A., Computer Science + Mathematics, Tabor College

May 2009

- Graduated Summa Cum Laude (GPA: 3.9)
- Advisors: Glen Diener, Dr. Frank Brenneman, Dr. Timothy Frye

publications

books

Stefan Brandle, Jonathan Denning, Jonathan Geisler, Roman Lysecky, Frank McCown, et al. *Web Programming*. zyBooks. Web. Aug 2016. 10k+ total subscribers. [link](#)

leading journals: siggraph + tog

Jonathan D. Denning, Valentina Tibaldo, Fabio Pellacini. *3DFlow: Continuous Summarization of Mesh Editing Workflows*. ACM Transactions on Graphics (SIGGRAPH), 34 (4), 2015 Jul.

Jonathan D. Denning, Fabio Pellacini. *MeshGit: Diffing and Merging Meshes for Polygonal Modeling*. ACM Transactions on Graphics (SIGGRAPH), 32 (4), 2013 Jul.

Xiaobo An, Xin Tong, Jonathan D. Denning, Fabio Pellacini. *AppWarp: Retargeting Measured Materials by Appearance-Space Warping*. ACM Transactions on Graphics (SIGGRAPH Asia), 30 (6), 2011 Dec.

Jonathan D. Denning, William B. Kerr, Fabio Pellacini. *MeshFlow: Interactive Visualization of Mesh Construction Sequences*. ACM Transactions on Graphics (SIGGRAPH), 30 (4), 2011 Jul.

other journals

William B. Kerr, Fabio Pellacini, Jonathan D. Denning. *BendyLights: Artistic Control of Direct Illumination by Curving Light Rays*. Computer Graphics Forum (Eurographics Symposium on Rendering), 29 (4), pp. 1269–1277, 2010.

thesis

Jonathan D. Denning. *ModFlows: Methods for Studying and Managing Mesh Editing Workflows*. Dartmouth College Computer Science Ph.D. Dissertation, 2014.

posters

Austin E. MacKay, Jonathan D. Denning. *rpTextures: Systematic Layering for Large Texture Generation*. SIGGRAPH 2017 Poster, 2017 August.

technical reports

Jonathan D. Denning, Fabio Pellacini. *3DFlow: Continuous Summarization of Mesh Editing Workflows*. Dartmouth College Computer Science, TR2014-757, June 2014.

Jonathan D. Denning, Jiawei Ou, Fabio Pellacini. *SculptFlow: Visualizing Sculpting Sequences by Continuous Summarization*. Dartmouth College Computer Science, TR2014-759, June 2014.

Jonathan D. Denning, Fabio Pellacini. *CrossComp: Comparing Multiple Artists Performing Similar Modeling Tasks*. Dartmouth College Computer Science, TR2014-760, June 2014.

Jonathan D. Denning, Fabio Pellacini. *MeshGit: Diffing and Merging Polygonal Meshes*. Dartmouth College Computer Science, TR2012-722, May 2012.

research

taylor university

Studying 3D artist content creation and design workflows	F14–Now
Studying computer science students programming workflows	F14–Now
Faculty-Mentored Undergraduate Summer Scholarship	2015

Undergraduate Research	2015–Now
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- Human-computer interactions in virtual reality
- Understanding how undergraduate computer science students work
- Extremely large texture mapping using relatively prime numbers
- Democratizing balance of MOBA-like video games
- Exploring expressiveness of tiled texture mapping
- Using neural networks to optimize filters for noisy path-traced images
- Accelerated, efficient, and artist-friendly rendering of Boolean scenes in GLSL
- Generating and rendering solar system interactively in GLSL
- Using genetic algorithms to improve 2D RoboCup players
- Exploring novel meta programming language

dartmouth college

CS Graphics Lab	F09–S14
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- Studied 3D artist content creation and design workflows
- Retargeted and visualized measured materials
- Studied perception of lighting and shadows
- Released software and collected data as open source

tabor college

- CS Practicum Fo8–So9
- Developed a system to analyze video sequence data by finding piecewise flow
- Math Readings and Research So9
- Studied Ramsey Numbers through Coxeter Groups and Cayley Graphs
 - Presented findings at Kansas Section of the Mathematical Association of America, May 2009

recent industry experience

- CG Cookie, Orange Turbine 2014–Now
- Developed artist-centered mesh editing tools called [RetopoFlow](#)
 - Technical Director for [Eat Sheep](#) short film F22
 - Developed wizard to semi-automate custom 3D eye mask for [Ellio Labs](#) 2022–Now
 - Code review of Blender add-on for [Roblox](#) 2023
- Blender Institute Jan22–Jul22
- Developed retopology mode, tools, functionality ([report](#))

teaching experience

taylor university, courses

COS143	Interactive Webpage Design	W16
COS170	Introduction to Game Engine Design	Su17–Su19
COS265	Data Structures and Algorithms	F14–F20, F22–Now
COS310	Current Literature Survey	Su16, F16–F19, F22–Now
COS320	Algorithm Design	S18, S20
COS350	Computer Graphics	F14–F20, F22–Now
COS351	Computer Vision	S16, S18, S20
COS370	Game Engine Architecture	S19, S21, S23
COS382	Language Structures	S15, S17, S19, S23
COS424	Surfaces and Modeling	S15, S17
COS45x	Directed Research, Research 1/2	2015–Now
COS493	Computer Science Senior Capstone	F22–Now
SYS214	Principles in Human–Computer Interaction	F14–F16, S18–S19
SYS270	Game Studies	S16
SYS394	Information Systems Design	S15

taylor university, cram / summer honors / summer institute / summer camp

COS170	Introduction to Game Engine Design (Honors)	Su17–Su19
xxx	Video Game Development Summer Camp	Su23

taylor university, workshops and sessions

Text Files to Web Pages, Technology for Teaching	S16
Time Management (Freshmen), CSE Winter Retreat	2015–Now
Graduate School (Freshmen, Seniors), CSE Winter Retreat	2015–Now
Game Development	S16

other university courses

COSCx77	Computer Graphics, Dartmouth College	F11, S13, S14
CS100	Computer Literacy, Tabor College	So9

teaching assistantships

COSC37 Computer Architecture, Dartmouth College S11
(various) Elementary Statistics, Discrete Math, Programming 1 and 2, Tabor College 2007–2008

professional courses, instructor

Excel Training for Faculty and Staff, Tabor College 2008
Computer Literacy and Office Products Courses, Sorb Computers LLC 2007–2008

mentoring

taylor university

faculty-mentored undergraduate summer scholarship

Tory Harter, Justin Powell 2015

undergraduate research

Nathan Erickson, Noah Gegner, Micah Groeling, Lance VanErmen 2023
Jacob Banks, Caleb Collier, Alex McFarland, Logan Roth, Robert Swanson S21
David Deng, Jacob Haimés, Lauren James, Cordell King 2020
Benjamin Fritzeen, Ryan Jones, Jake Masters, Benjamin Ryker, Connor Wagner 2019
Andrew Olin 2018
Austin MacKay, David Nurkkala 2017
Michael Monroe, Nathaniel Katzenberger, David Nurkkala, Adam Pogwizd 2016
Keith Bauson, Tory Harter, Justin Powell 2015

undergraduate projects

Jared Sennese 2023
Christopher Gearhart 2016–2018

other

Pre-engagement / Lifestyle and Choices Mentoring 2016–Now

tabor college

Academic Mentoring 2008–2009
Lifestyle and Choices Mentoring 2008–2009

academic service

chairing

Foundational Core Committee, Taylor University F18–S19
Computer Science and Engineering Department, Taylor University F18–S21, F22–Now

committees

Foundational Core Committee, Taylor University F15–S21

volunteering (select)

Taylor Brightspace Ambassador	2023
GameJam, Taylor University	F14–Now
Taylor CSE Programming Contest	S18–Now
Computer Science Research Symposium, Dartmouth College	2013
Graphics and Vision Group lunch meetings, Dartmouth College	2010–2011
Various volunteering, Dartmouth College	2010–2014

teaching assistantships, peer tutoring

COSC37 Computer Architecture, Dartmouth College	S11
(various) Elementary Statistics, Discrete Math, Programming 1 and 2, Tabor College	2007–2008
(various) Peer Tutoring for Math and Computer Science courses, Tabor College	2007–2008

on-going education

taylor university

Teaching squares / triads	2014–Now
Strong participation in Bedi Center for Teaching and Learning Excellence workshops	2014–Now
Participation in Technology for Teaching workshops	2016

professional service

reviewing

ACM SIGGRAPH / SIGAsia	2014, 2016, 2017, 2020
Pacific Graphics	2015
ACM Symposium on User Interface Software and Technology (UIST)	2013
Journal of Graphic Tools (JGT)	2013
Eurographics (EG)	2013

presentations

conference presentations

Blender Conference, Amsterdam, Netherlands <i>A study on automating eye mask creation, link</i>	Oct 2022
Blender Conference, Amsterdam, Netherlands Co-presented with Jason van Gumster <i>Beginning developer workshop, link</i>	Oct 2022
Blender Conference, Amsterdam, Netherlands <i>Add-on Development Panel, link</i>	Oct 2019
Blender Conference, Amsterdam, Netherlands <i>CookieCutter: A CG Cookie Blender Add-on Toolkit, link</i>	Oct 2018
Celebration of Scholarship, Taylor University Poster presentation with Andrew Olin <i>Student Process Visualization</i>	May 2018
ACM SIGGRAPH 2017, Los Angeles, CA, USA Poster presentation with Austin MacKay <i>Textures: Systematic Layering for Large Texture Generation</i>	Aug 2017

Technology for Teaching, Taylor University, IN, USA <i>Text Files to Web Pages</i>	May 2016
ACM SIGGRAPH 2015, Los Angeles, CA, USA <i>3DFlow: Continuous Summarization of Mesh Editing Workflows</i>	Aug 2015
Blender Conference, Amsterdam, Netherlands Co-presented with Jonathan Williamson (CG Cookie) <i>Developing and Designing Powerful Modeling Tools</i>	Oct 2014
Blender Conference, Amsterdam, Netherlands <i>Mesh(Flow/Git): Understanding and Managing Mesh Editing Workflows</i> , link	Oct 2014
ACM SIGGRAPH 2013, Anaheim, CA, USA <i>MeshGit: Diffing and Merging Meshes for Polygonal Modeling</i>	Jul 2013
ACM SIGGRAPH 2011, Vancouver, BC, Canada <i>MeshFlow: Interactive Visualization of Mesh Construction Sequences</i>	Aug 2011
Kansas Section of the Mathematical Association of America, Pittsburg, KS <i>Studying Ramsey Numbers with Coxeter Groups and Cayley Graphs</i>	May 2009

invited talks

CS/Math Invited Talk, Marian University, Indianapolis, IN, USA <i>Maths and Algorithms Behind Photo-Realistic Images</i>	Mar 2020
Frank S. Brennenam Lecture Series, Tabor College, Hillsboro, KS, USA <i>The Maths and Algorithms Behind Photo-realistic Graphics</i>	Apr 2015
Frank S. Brennenam Lecture Series, Tabor College, Hillsboro, KS, USA <i>Using Monte Carlo Integration to Solve the Rendering Equation</i>	Apr 2015
Science Seminar, Taylor University, Upland, IN, USA <i>Open-source Mindset and Science</i>	Oct 2014

workshops

Blender Conference, Amsterdam, Netherlands Co-presented with Jason van Gumster <i>Beginning developer workshop</i> , link	Oct 2022
Blender Conference, Amsterdam, Netherlands <i>Add-on Development Panel</i>	Oct 2019

funding

BCTLE Mini-Grant, Taylor University	2018
Faculty-Mentored Undergraduate Summer Scholarship, Taylor University	2015
Critical Thinking Mini-Grant, Taylor University	2015–2017

sabbatical

Full-time, full-year sabbatical, Taylor University	Su21–Su22
<ul style="list-style-type: none"> • Orange Turbine <ul style="list-style-type: none"> ◦ Technical Director for Eat Sheep short film ◦ Developed wizard to semi-automate custom 3D eye mask for Ellio Labs • Blender Institute <ul style="list-style-type: none"> ◦ Developed retopology mode, tools, functionality (report) 	<p>Jun21–Jul22</p> <p>Jan22–Jul22</p>

technical experience

Artist Tools Developer, CG Cookie	2014–Now
Programming Intern, Bradbury Company, Moundridge KS	S09
Freelance Web Developer	2008–2009
Office Mgr. + Computer Tech, Sorb Computers LLC, Hillsboro KS	Jan 2006–Sep 2008
Computer Tech, USD383, Manhattan KS	Oct 2004–Dec 2005
Tech Support and Admin, iTAC, Kansas State University, Manhattan KS	2002
Project Mgr. + Software Developer, Vortron Computers / Shazzam LLC, Junction City KS	1999–2002

Skills: C, C++, C#, Python, Java, JavaScript, **L^AT_EX**, MATLAB, UNIX tools, OpenGL, GLSL, WebGL, BASH, PHP, HTML, CSS, Blender

interviews

Pawlowski, Emily. *Big dreams compete with little time at Game Jam 2019*. The Echo, Upland, Indiana, April 25, 2019. [Online](#).

Koenig, Laura. *Creative coding*. The Echo, Upland, Indiana, September 30, 2016. [Online](#).

Mumford, Brecken. *Please play games in class*. The Echo, Upland, Indiana, February 19, 2016. [Online](#).

Hutchins, Seth. *Gaming class being featured at Taylor*. Chronicle-Tribune, Marion, Indiana, February 15, 2016. [Online](#).

Mumford, Brecken. *Save and continue*. The Echo, Upland, Indiana, November 13, 2015. [Online](#).

Chen, Nysha and White, Elise. *Game Jam 2015*. Taylor University Media Communications, November 2015. [Online](#).

Dalton, Alexandra. *Faculty Spotlight: An Interview with Jon Denning*. Dartmouth Undergraduate Journal of Science (DUJS), Vol. XV, No. 3, pp. 5–7, S13. [Online](#).

Overstake, Grant. *Tabor's Jonathan Denning's Passion for Computer Programming Leads to Dartmouth College*. Tabor College News. April 2009. [Online](#).

extracurricular activities

Hosted computer-generated movie nights	2016–Now
Hosted GameJam competitions	2014–Now
Hosted computer programming competitions	S21, F22–Now
Hosted game programming workshop	S16
Hosted paintball excursions	2010–Now
Assisted hosting board game events	2015–2017
ACM ICPC Coach	2017
Assisted programming contest practice	2015–Now

honors and awards

Graduated Summa Cum Laude (GPA: 3.9), Tabor College	May 2009
Natural and Mathematical Sciences Division Award, Tabor College	May 2009
Excellence of Work Award, Votron Computers and Consultation	May 2001
First Place, Adv. Division, Kansas State University High School Programming Contest	Nov 1998
First Place, Adv. Division, Kansas State University High School Programming Contest	Nov 1997
Fourth Place, Adv. Division, Kansas State University High School Programming Contest	Nov 1996

references

Available upon request