Thomas Torsney-Weir

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I am currently a visualization researcher with interest in visual analysis in multi-dimensional continuous spaces and understanding complex models. I have 20 years of experience in the technology industry. I am experienced in a variety of work environments from being full-stack engineer, being a technical lead, to performing computer science research. I love learning about new technologies and how I can use them to create better software more easily.

Journal publications

Rydow, Erik, Rita Borgo, Hui Fang, Thomas Torsney-Weir, Ben Swallow, Thibaud Porphyre, Cagatay Turkay, and Min Chen. "Development and evaluation of two approaches of visual sensitivity analysis to support epidemiological modeling," IEEE Transactions on Visualization and Computer Graphics. 2022.

Dunne, Michael, Hossein Mohammadi, Peter Challenor, Rita Borgo, Thibaud Porphyre, Ian Vernon, Elif E Firat, et al. "Complex model calibration through emulation, a worked example for a stochastic epidemic model," Epidemics. 2022.

Dykes, Jason, Alfie Abdul-Rahman, Daniel Archambault, Benjamin Bach, Rita Borgo, Min Chen, Jessica Enright, et al. "Visualization for Epidemiological Modelling: Challenges, Solutions, Reflections & Recommendations," arXiv:2204.06946 [cs]. 2022.

Schwarzl, Magdalena, Ludovic Autin, Graham Johnson, Thomas Torsney-Weir, and Torsten Möller. "Cellpackexplorer: Interactive model building for volumetric data of complex cells," Computers & Graphics: X. 2019.

Torsney-Weir, Thomas, Torsten Möller, Michael Sedlmair, and R. Mike Kirby. "Hypersliceplorer: Interactive visualization of shapes in multiple dimensions," Computer Graphics Forum. 2018.

Torsney-Weir, Thomas, Michael Sedlmair, and Torsten Möller. "Sliceplorer: 1D slices for multi-dimensional continuous functions," Computer Graphics Forum. 2017.

Torsney-Weir, Thomas, Steven Bergner, Derek Bingham, and Torsten Möller. "Predicting the interactive rendering time threshold of Gaussian process models with HyperSlice," IEEE Transactions on Visualization and Computer Graphics. 2017.

Pajer, Stephan, Mark Streit, Thomas Torsney-Weir, Florian Spechtenhauser, Torsten Möller, and Harald Piringer. "WeightLifter: Visual Weight Space Exploration for Multi-Criteria Decision Making," IEEE Transactions on Visualization and Computer Graphics. 2016.

Kainz, Bernhard, Markus Steinberger, Wolfgang Wein, Maria Kuklisova-Murgasova, Christina Malamateniou, Kevin Keraudren, Thomas Torsney-Weir, et al. "Fast Volume Reconstruction from Motion Corrupted Stacks of 2D Slices," IEEE Transactions on Medical Imaging. 2015.

Torsney-Weir, Thomas, Ahmed Saad, Torsten Möller, Britta Weber, Hans-Christian Hege, Jean-Marc Verbavatz, and Steven Bergner. "Tuner: Principled Parameter Finding for Image Segmentation Algorithms Using Visual Response Surface Exploration," IEEE Transactions on Visualization and Computer Graphics. 2011.

Conference publications

Gibson, F., R. Fabbro, A. Rahat, Thomas Torsney-Weir, D. Archambault, M. Gravenor, and B. Lucini. "An interactive tool for enhancing hospital capacity predictions using an epidemiological model," Proceedings of the Genetic and Evolutionary Computation Conference Companion. 2021.

Çetin, Asil, Torsten Moeller, and Thomas Torsney-Weir. "CorpSum: Towards an Enabling Tool-Design for Language Researchers to Explore, Analyze and Visualize Corpora," Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. 2021.

Diehl, Alexandra, Elif E. Firat, Thomas Torsney-Weir, Alfie Abdul-Rahman, Benjamin Bach, Robert Laramee, Renato Pajarola, and Min Chen. *VisGuided: A Community-driven Approach for Education in Visualization* 2021.

Torsney-Weir, Thomas, Shahrzad Afroozeh, Michael Sedlmair, and Torsten Möller. "Risk fixers and sweet spotters: A study of the different approaches to using visual sensitivity analysis in an investment scenario," EuroVis 2018 - Short Papers. 2018.

Torsney-Weir, Thomas, Michael Sedlmair, and Torsten Möller. *Decision making in uncertainty visualization* 2015.

Other publications

Torsney-Weir, Thomas. "Slicing multi-dimensional spaces" 2018.

Torsney-Weir, Thomas. "Visual analysis of high-dimensional parameter spaces" 2012.

Torsney-Weir, Thomas, Ahmed Saad, Torsten Möller, Britta Weber, Hans-Christian Hege, and Jean-Marc Verbavatz. *PReSM: Principled parameter finding for image segmentation algorithms using visual response surface exploration* 2011.

Academic positions

July 2021 – present
: **Researcher** Biomedical image informatics, VRVis Zentrum für Virtual Reality und Visualisierung Forschungs-GmbH

July 2019 – June 2021
: **Lecturer** Computer science department, Swansea University

April 2018 – June 2019
: **Universitätsassistent ("post doc")** Visualization and data analysis research group, University of Vienna

July 2016 – October 2016
: **Research internship** Center for Applied Scientific Computing, Lawrence Livermore National Laboratory

January 2015 – April 2018
: **Universitätsassistent ("prae doc")** Visualization and data analysis research group, University of Vienna

January 2011 – December 2012
: **Research assistant** GrUVi Lab, SFU Computing Science Department

September 2005 – May 2006
: **Research assistant** NYU Proteus Project, NYU Computer Science Department

May 2002 – October 2002
Research assistant "Learning driving behaviors for autonomous vehicles," NIST-funded project, Georgetown Computer Science Department

Education

2018
PhD in Computer Science. University of Vienna, Vienna, Austria
2012
MSc in Computer Science. Simon Fraser University, Burnaby, BC, Canada
2002
BS in Computer Science. Georgetown University, Washington, DC, USA

Invited talks

September 8, 2020
"Visualization for understanding regression models." Turing Institute, London, UK.
October 30, 2019
"Visualizing multi-dimensional spaces." JKU Linz, Austria.
May 03, 2019
"Visualization and machine learning." Data science hackathon, Vienna, Austria.
March 18, 2019
"Slicing multi-dimensional spaces." Data and Design Meetup, Vienna, Austria.
January 10, 2017
"Visualization of machine learning algorithms." JKU Linz, Austria.
January 8, 2017
"Tuner", MedVis 2, TU Wien, Vienna, Austria.
November 30, 2017
"Slicing multi-dimensional spaces." Discrete geometry seminar, Freie University Berlin, Germany.
May 6, 2014
"scala-swing." Vienna Scala meetup group, Vienna, Austria.
September 19, 2013
"Tuner." Visualization and virtual reality research group, University of Leeds, Leeds, UK.
June 20, 2012
"Tuner." MADAI workshop, Duke University, Durham, NC.
September 16, 2011
"Visualization of computer models." MoCCSy Graduate Seminar, Burnaby, BC.

Scientific activities

2022 – present
Poster chair, VCBM (EG Workshop on Visual Computing for Biology and Medicine)
2020 – present
IPC member, Eurovis papers track
2019 – present
IPC member, EuroVis STAR
2014 – present
Program committee member, International Conference on Intelligent User Interfaces

2012 – present
Reviewer, IEEE Transactions on Visualization and Computer Graphics
2020 – present
Reviewer, Frontiers in Bioinformatics
2019
IPC member, International Symposium on Visual Computing
2016 – 2018
Student volunteer chair IEEE Visualization conference
2018
Program committee member, Workshop on Exploratory Search and Interactive Data Analytics (ESIDA 2018)
2016 – 2018
Program committee member, International EuroVis workshop on visual analytics (EuroVA)
2012 – 2014
Reviewer, EG/VGTC Conference on visualization (EuroVis)
2014
Reviewer, Computers and Graphics

Teaching

- Relational and Object-Oriented Database Systems
- Data visualization
- Visualization and Visual Data Analysis
- Foundations of Data Analysis
- Introduction to Computer Graphics
- Introduction to Data Structures and Algorithms

Academic awards

2017
A/B publication strategy award, University of Vienna
Spring 2012
SFU graduate fellowship (Masters), CAD 6,250

Professional positions

September 2007 – June 2010
Vice President, Lead Developer StoneCastle Partners. New York, NY
- Implemented an investment management system for a variety of asset types using Pylons/Python, the Dojo javascript framework, and PostgreSQL.
- Specified and supervised the integration of the Alfresco document management system with the investment management system to track key investment decisions and deal documents.
- Designed a GIS system for monitoring areas of the country risky to banks.
- Built a genetic algorithm to find the optimal method to perform field visits across the country.
- Used the Condor grid service to implement a CDO evaluation system that enabled a Unix server to call a Windows-only application.
- Wrote a simple web crawler to download rural newspaper articles to a central data store so analysts could browse regional news not covered by the major news aggregation sites.

July 2004 – September 2007

Vice President, Lead Developer Bear Stearns Asset Management. New York, NY

- Supervised a team of 4 to design and implement a front-office portfolio surveillance system for a structured finance hedge fund using a SQL database using Java and Ruby on Rails.
- Used Condor to parallelize various long-running tasks across multiple compute nodes.
- Assisted with the design and implementation of a proprietary credit risk model for an internally managed fund.
- Interacted directly with business staff to design and implement a variety of portfolio management systems.

March 2003 – July 2004

Senior Associate Moody's Investors Service. New York, NY

- Implemented a spread-based Monte Carlo asset simulation in C.
- Created a combination Excel spreadsheet and C to create an Excel add-in to rate combo notes.
- Assisted analysts with modeling complex waterfall steps in CDO Analytics.
- Assisted with the coordination of the CDO Analytics testing team.
- Wrote specifications based on analysts' suggestions and work flow.

Other activities

- Scuba diving
- Board games
- Cycling
- Skiing
- Trail running