

Josua Krause

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Education

PhD in Computer Science, NYU Tandon School of Engineering

dissertation: “Using Visual Analytics to Explain Black-box Machine Learning”

advisor: Prof. Dr. Enrico Bertini

New York, USA – 2013 - 2018

MSc in Computer Science, University of Konstanz

thesis: “Graph Comics: Interactive Staging for Exploring Dynamic Graphs”

advisor: Prof. Dr. Oliver Deussen, Prof. Dr. Enrico Bertini

Konstanz, Germany – 2011 - 2014

BSc in Information Engineering, University of Konstanz

thesis: “Annotation of Changes in Evolving Graphs”

advisor: Prof. Dr. Oliver Deussen, Prof. Dr. Ulrik Brandes

Konstanz, Germany – 2008 - 2011

Employments

Accern

role: Vice President of Data Science

lead of research, development, and deployment of AI models; focus on deep representation learning, natural language processing, and adaptive learning at scale

New York, USA – 2020 - current

NYU Tandon School of Engineering

role: Adjunct Professor

New York, USA – 2021

Accern

role: Senior Data Scientist

New York, USA – 2018 - 2020

Pacific Northwest National Laboratory

role: PhD Intern, National Security Internship Program

Washington, USA – 2016 and 2017

IBM T. J. Watson Research Center

role: Research Summer Intern

New York, USA – 2014 and 2015

NYU Tandon School of Engineering

role: Research Assistant, Teaching Assistant

New York, USA – 2013 - 2018

University of Konstanz

role: Research Assistant, Teaching Assistant

Konstanz, Germany – 2009 - 2013

Patents

Josua Krause, Kenney Ng, Adam Perer: “Identifying and ranking risk factors using trained predictive models”,

US Patent 11,355,245 and 11,355,246 – submitted 2017, accepted 2022

Invited Talks / Teaching

invited talk: AI4CI: Artificial Intelligence for Collective Intelligence

United Nations Development Programme – 2022

webinar: How to Spot and Understand AI Bias within Financial Services

Accern – 2022

blog: Adaptive Modeling: Building Models that Last

Accern – 2021

teaching: Foundations of Data Science

NYU Tandon School of Engineering – 2021

mentor: Capstone Projects

NYU Center for Data Science – 2019 - 2020

mentor: Capstone Project

Columbia University – 2020

teaching: VIS for Practice Workshop – Vis. for the Web: Front- & Backends

Universität Konstanz – 2018

teaching assistant: Foundations of Data Science *NYU Tandon* – 2017
teaching assistant: Information Visualization *NYU Tandon* – 2015 - 2016
teaching assistant: Concepts of Computer Science *Univ. Konstanz* – 2012
teaching assistant: Concepts of Programming *Univ. Konstanz* – 2011

Committee Memberships

session chair: “Visualizing Machine Learning”
IEEE VIS Short Papers Track – 2020

associate chair: Special Applications Subcommittee
ACM CHI Conference on Human Factors in Computing Systems – 2019

reviewer: OPUS Grant Proposal
National Science Center, Poland – 2018

chair: *Workshop on Visual Analytics in Healthcare (VAHC)* – 2017

journal reviewer

Journal of Computational and Graphical Statistics – 2021 - 2022
Transactions on Visualization and Computer Graphics – 2015, 2018 - 2021
IEEE Transactions on Big Data – 2015, 2021
ACM Transactions on Interactive Intelligent Systems – 2021
IEEE Computer Graphics and Applications – 2015

program committee / reviewer

IEEE VIS – 2020 - 2022
IEEE VIS Short Papers Track – 2020 - 2022
EuroVis – 2016, 2019 - 2020, 2022
ACM Symposium on User Interface Software and Technology (UIST) – 2020
IEEE Information Visualization (InfoVis) – 2015, 2017 - 2019
IEEE Visual Analytics Science and Technology (VAST) – 2016 - 2019
ICLR Wrkshp. on Debugging Machine Learning Models (DEBUGML) – 2019
KDD Wrkshp. on Interactive Data Exploration and Analytics (IDEA) – 2018
IEEE Pacific Visualization Symposium (PacificVis) – 2018
ACM CHI Conference on Human Factors in Computing Systems – 2016

Publications

Josua Krause, Adam Perer, Enrico Bertini: “A User Study on the Effect of Aggregating Explanations for Interpreting Machine Learning Models”,

KDD 2018 Workshop on Interactive Data Exploration and Analytics (IDEA) 2018

Josua Krause, Aritra Dasgupta, Jordan Swartz, Yindalon Aphinyanaphongs, Enrico Bertini: “A Workflow for Visual Diagnostics of Binary Classifiers using Instance-Level Explanations”,

IEEE Transactions on Visualization and Computer Graphics (TVCG – VAST) 2017

Paolo Tamagnini, Josua Krause, Aritra Dasgupta, Enrico Bertini: “Interpreting Black-Box Classifiers Using Instance-Level Visual Explanations”,

Workshop on Human-In-the-Loop Data Analytics (HILDA) 2017

Josua Krause, Aritra Dasgupta, Enrico Bertini: “Explanatory Visual Analytics for Enhancing Human Interpretability of Machine Learning Models”,

Visualization in Data Science (VDS at IEEE VIS) 2016

Josua Krause, Adam Perer, Kenney Ng: “Interacting with Predictions: Visual Inspection of Black-box Machine Learning Models”,

Interactive Data Exploration and Analytics (IDEA) 2016

Josua Krause, Adam Perer, Enrico Bertini: “Using Visual Analytics to Interpret Predictive Machine Learning Models”,

ICML Workshop on Human Interpretability in Machine Learning (WHI) 2016

Josua Krause, Aritra Dasgupta, Jean-Daniel Fekete, Enrico Bertini: “SeekAView: An Intelligent Dimensionality Reduction Strategy for Navigating HD Data Spaces”,

IEEE Symposium on Large Data Analysis and Visualization (LDAV) 2016

Anshul Vikram Pandey, Josua Krause, Cristian Felix, Jeremy Boy, and Enrico Bertini: “Towards Understanding Human Similarity Perception in the Analysis of Large Sets of Scatter Plots” (Honorable Mention),

ACM Conference on Human Factors in Computing Systems (CHI) 2016

Josua Krause, Adam Perer, and Kenney Ng: “**Interacting with Predictions: Visual Inspection of Black-box Machine Learning Models**”,
ACM Conference on Human Factors in Computing Systems (CHI) 2016

Josua Krause, Adam Perer, and Harry Stavropoulos: “**Supporting Iterative Cohort Construction with Visual Temporal Queries**”,
IEEE Transactions on Visualization and Computer Graphics (TVCG - VAST) 2015

Josua Krause, Narges Razavian, Enrico Bertini, and David Sontag: “**Visual Exploration of Temporal Data in Electronic Medical Records**”,
Poster Session I of the AMIA Annual Symposium; Poster 2015

Josua Krause and Adam Perer: “**Data-Driven Cohort Construction with Interactive Visual Queries**”,
2015 Workshop on Visual Analytics in Health Care; Demo 2015

Josua Krause, Narges Razavian, Enrico Bertini, and David Sontag: “**Visual Inspection of Longitudinal Electronic Medical Records**”,
2015 Workshop on Visual Analytics in Health Care; Demo 2015

Josua Krause, Adam Perer, and Enrico Bertini: “**INFUSE: Interactive Feature Selection for Predictive Modeling of High Dimensional Data**”,
IEEE Transactions on Visualization and Computer Graphics (TVCG - VAST) 2014

Josua Krause, Marc Spicker, Leonard Wörteler, Matthias Schäfer, Leishi Zhang, and Hendrik Strobel: “**Interactive Visualization for Real-time Public Transport Journey Planning**”,
Proceedings of SIGRAD 2012