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# Josua Krause

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web: <https://josuakrause.github.io/info/>

## Personal Information

date of birth: January 18th, 1988  
place of birth: Isny im Allgäu, Germany  
nationality: German

## Education

### PhD, NYU Tandon School of Engineering

New York, USA – 2013 - 2018  
PhD in Computer Science  
dissertation: “Using Visual Analytics to Explain Black-box Machine Learning”  
advisor: Prof. Dr. Enrico Bertini

### MSc, University of Konstanz

Konstanz, Germany – 2011 - 2014  
Master of Science in Computer Science  
thesis: “Graph Comics: Interactive Staging for Exploring Dynamic Graphs”  
advisor: Prof. Dr. Oliver Deussen, Prof. Dr. Enrico Bertini

### BSc, University of Konstanz

Konstanz, Germany – 2008 - 2011  
Bachelor of Science in Information Engineering  
thesis: “Annotation of Changes in Evolving Graphs”  
advisor: Prof. Dr. Oliver Deussen, Prof. Dr. Ulrik Brandes

## Employments

### Accern

New York, USA – 2020 - current  
Vice President of Data Science

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## **NYU Tandon School of Engineering**

New York, USA – 2021  
Adjunct Professor

## **Accern**

New York, USA – 2018 - 2020  
Senior Data Scientist

## **Pacific Northwest National Laboratory**

Washington, USA – 2016 and 2017  
Summer Internships

## **IBM T. J. Watson Research Center**

New York, USA – 2014 and 2015  
Summer Internships

## **NYU Tandon School of Engineering**

New York, USA – 2013 - 2018  
Research Assistant  
Teaching Assistant

## **University of Konstanz**

Konstanz, Germany – 2009 - 2013  
Research Assistant

## **University of Konstanz**

Konstanz, Germany – 2011 - 2012  
Teaching Assistant

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## Research

**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

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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

## 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

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## 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  
Visualization 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

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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 Workshop on Debugging Machine Learning Models (DEBUGML) – 2019  
KDD Workshop on Interactive Data Exploration and Analytics (IDEA) – 2018  
IEEE Pacific Visualization Symposium (PacificVis) – 2018  
ACM CHI Conference on Human Factors in Computing Systems – 2016