Benjamin Bach
Lecturer in Design Informatics and Visualisation
University of Edinburgh
United Kingdom

10 Crichton St
Edinburgh EH8 9AB

benj.bach@gmail.com
https://vishub.net/bach
@benjbach
Google Scholar profile
+44(0)7452-999-335

Research

Benjamin has been a Lecturer in Design Informatics and Visualisation at the School of Informatics, University of Edinburgh since 2017 and is now leading the VisHub Group (http://vishub.net). His research focuses on making data visualisation more effective and usable, which includes creating and evaluating interactive visualisations for complex datasets (e.g., networks and temporal data) and researching methods to effectively communicate and present data. Many of his projects involve interdisciplinary collaborations with researchers in neuroscience, history, archaeology, law, and biology. In 2021, Benjamin was named Significant New Researcher by the IEEE VIS conference and in 2019, he was awarded the Eurographics Young Researcher Award, highlighting his "broad and original contributions" and his "high rate of well-cited publications". In 2014, Benjamin's PhD dissertation was awarded a Best Thesis Honorable Mention by the IEEE VIS conference technical committee. His research on data comics and visual storytelling has also been awarded an internal Visual communication award by the Scottish Government.

Prior to joining the University of Edinburgh, Benjamin was a research assistant at the Visual Computing Group at Harvard University, the Immersive Analytics Lab at Monash University, a visiting researcher at Microsoft Research, Redmond, and the Integrated Brain Imaging Center at the University of Washington. Benjamin has over 60 publications and is regularly publishing at top-tier conferences and journals such as ACM Conference on Human Factors in Computing Systems (CHI) and IEEE Transactions on visualisation and Computer Graphics (TVCG).

Employment

Since Apr 2017	Lecturer (Assistant Professor, tenured) in Design Informatics and Visualisation School of Informatics University of Edinburgh, UK
Oct 2016 - Mar 2017	Post-doctoral researcher Visual Computing Group Harvard University, Cambridge MA

Apr 2016 - Sep 2016   Post-doctoral researcher
                      Monash University Caulfield, VIC, Australia

Feb 2015 - Oct 2015   Visiting Scientist Feb. - Nov. 2015
                      Integrated Brain Imaging Center (IBIC), University of Washington, and
                      Microsoft Research, Seattle, WA, USA

Jun 2014 - Oct 2015   Post-doctoral researcher
                      Interactive Network Visualization
                      Microsoft Research - Inria Joint Center Saclay, France

Jan 2011 - May 2014   Ph.D. Student
                      Aviz Group, Inria Saclay, France

Nov 2009 - Apr 2010   Research Internship InSitu Group, Inria,
                      Saclay, France

Awards and Grants

2021	EPSRC (CoI): RAMP VIS: Making Visual Analytics an Integral Part of the Technological Infrastructure for Combating COVID-19, ~£427,000
2021	Scottish Funding Council (SCF): Data Visualization Online Course for Upskilling, £45,000 (PI)
2021	EPSRC (PI): Visovery: Semi-automatic Data Tours to Support Data Exploration and Visualisation Literacy, ~£320,000
2020	Data Driven Innovation (DDI), Co-I: Outbreak Science and Policy: A Sentiment-based Mathematical Model Repository (SER) for disease emergency decision-making and long-term resilience to future One Health threats; £89,754.30
2020	Data Driven Innovation (DDI), Co-I: Data-driven personalised recovery care pathways after COVID-19, £85,814
2019	Scottish Funding Council (SCF): Data Visualization Online Course for Upskilling, £80,000 (PI)
2019	Global Challenges Research Fund (GCRF): Peacetech Initiative: partnership for interactive mediation, £46,000
2018	EPSRC Capital Investment Grant: VisHub—A Collaborative Data Visualisation Space for Interdisciplinary Research, Teaching, and Public *Engagement.* £200k (Co-I)
2018	Edinburgh Futures Institute Research Grant: *Visualizing Inequalities* £5k (PI)
2017	IGS (School internal) PhD scholarship funding: ~£60k over 3 years (PI)
2017	Principal's Teaching Award: Towards Real-world teaching in Data Science, £15k (PI)
2014	Microsoft Research - Inria Joint Centre 18 month position
2010-2014	French Government Ph.D. grant: $100.000, over 3 years

Awards

2021	New Significant Researcher Award, IEEE VIS
2019	Eurographics Young Researcher, IEEE/CG Eurographics

| 2014 | VGTC Best Ph.D. Thesis 2014, Honorable Mention, IEEE VIS |
| 2013 | Best Paper (top 1%), ACM Conference on Human Computer Interaction (CHI) 2013, Best Paper |

Professional Activities (selection)

- ACM CHI Paper Associate Chair (2018, 2019, 2021)
- ACM CHI Late Breaking Work Associate Chair (2017)
- ACM CHI Work-in-Progress Program Committee (2015)
- IEEE VIS Program Committee (since 2018)
- IEEE VIS Organizing Committee (since 2019)
- GraphDrawing Program Committee
- ACM ISS Workshop Chair (2020)
- TransImage Conference: Conference Co-chair 2018

Scientific / Conference Workshops

- [2nd IEEE VIS Workshop on Data Vis Activities to Facilitate Learning, Reflecting, Discussing, and Designing](), Samuel Huron, **Benjamin Bach**, Uta Hinrichs, Sheelagh Carpendale, IEEE VIS 2021
- IEEE VIS Workshop on Data Vis Activities to Facilitate Learning, Reflecting, Discussing, and Designing. Samuel Huron, **Benjamin Bach**, Uta Hinrichs, Mandy Keck, Jonathan C. Roberts. IEEE VIS 2020
- VisGuides: 3rd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization. Alfie Abdul-Rahman, Alexandra Diehl, **Benjamin Bach**, IEEE VIS 2020
- [Envisioning Future Productivity for Immersive Analytics](): Barrett Ens, Benjamin Bach, Maxime Cordeil, Ulrich Engelke, Marcos Serrano, Wesley Willett. ACM CHI 2020
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: **Benjamin Bach**, Workshop at The Connected Past, University of Oxford, 2018
- [VisGuides: 2nd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization](): Alexandra Diehl, **Benjamin Bach**, Alfie Abdul-Rahman, IEEE VIS 2018, Berlin
- Storyboards for Science: Combining the Visual and Verbal to Create Engaging Communication: David Rogers, Francesca Samsel, Sean Cunningham, **Benjamin Bach**, IEEE VIS 2018, Berlin
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: **Benjamin Bach**, Jean-Daniel Fekete, Nicole Dufournaud, Open workshop, EHESS, Paris, 2018
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: **Benjamin Bach**, Workshop at CAA conference, University of Tübingen, 2018
- [Immersive Analytics: Exploring Future Visualization and Interaction Technologies for Data Analytics](): **Benjamin Bach**, Maxime Cordeil, Tim Dwyer, Bongshin Lee, Bahador Saket, Alex Endert, Christopher Collins, Sheelagh Carpendale, IEEE VIS 2017 Phoenix, AZ
- [Discovery Jam](): David Rogers, Dan Keefe, Francesca Samsel, Miriah Meyer, Cecilia Aragon, **Benjamin Bach**: IEEE VIS 2017, Phoenix, AZ
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: **Benjamin Bach**, Workshop at The Connected Past, University of Bournemouth, 2017
- [Immersive Analytics: Exploring Future Interaction and Visualization Technologies for Data Analytics](): **B Bach,** R Dachselt, S Carpendale, T Dwyer, C Collins, B Lee. Proceedings of the 2016 ACM on Interactive Surfaces and Spaces, 529-533

Publications

- See Publication List

Scientific Workshops

- [2nd IEEE VIS Workshop on Data Vis Activities to Facilitate Learning, Reflecting, Discussing, and Designing](), Samuel Huron, Benjamin Bach, Uta Hinrichs, Sheelagh Carpendale, IEEE VIS 2021
- [IEEE VIS Workshop on Data Vis Activities to Facilitate Learning, Reflecting, Discussing, and Designing](), Samuel Huron, Benjamin Bach, Uta Hinrichs, Sheelagh Carpendale, IEEE VIS 2020
- [3rd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization]() Alfie Abdul-Rahman, Alexandra Diehl, Benjamin Bach, IEEE VIS 2020
- [Envisioning Future Productivity for Immersive Analytics](): Barrett Ens, Benjamin Bach, Maxime Cordeil, Ulrich Engelke, Marcos Serrano, Wesley Willett, CHI 2020
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian:Benjamin Bach, Workshop at The Connected Past, University of Oxford, 2018
- [VisGuides: 2nd Workshop on the Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization](): Alexandra Diehl, Benjamin Bach, Alfie Abdul-Rahman, IEEE VIS 2018, Berlin
- Storyboards for Science: Combining the Visual and Verbal to Create Engaging Communication: David Rogers, Francesca Samsel, Sean Cunningham, Benjamin Bach, IEEE VIS 2018, Berlin
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: Benjamin Bach, Jean-Daniel Fekete, Nicole Dufournaud, Open workshop, EHESS, Paris, 2018
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- Immersive Analytics: Exploring Future Visualization and Interaction Technologies for Data Analytics: Benjamin Bach, Maxime Cordeil, Tim Dwyer, Bongshin Lee, Bahador Saket, Alex Endert, Christopher Collins, Sheelagh Carpendale, IEEE VIS 2017 Phoenix, AZ
- Discovery Jam: David Rogers, Dan Keefe, Francesca Samsel, Miriah Meyer, Cecilia Aragon, Benjamin Bach: IEEE VIS 2017, Phoenix, AZ
- Interactive Visualization of Dynamic Multivariate Networks with the Vistorian: Benjamin Bach, Workshop at The Connected Past, University of Bournemouth, 2017
- Immersive Analytics: Exploring Future Interaction and Visualization Technologies for Data Analytics: B Bach, R Dachselt, S Carpendale, T Dwyer, C Collins, B Lee. Proceedings of the 2016 ACM on Interactive Surfaces and Spaces, 529-533

Recent Invited Talks

(Not including conference presentations)

- December 2021: [Data Comics for Data-Driven Storytelling](), Westminster City Council, London
- October 2021: Data Comics for Data-Driven Storytelling. Guest Lecture. Kings College London.
- September 2021: [Communicating Research through Data Comics](), Royal Stastistical Society Conference 2021.
- August 2021: [Visualization Empowerment](), FH Potsdam, Information+Visualisation Talk series, GER
- July 2021: [Data Visualization for Exploration, Explanation, and Participation](), Turing RSE Summer school, UK
- July 2021: Data-Driven Storytelling with Data Comics, PKUVIS Visualization Summer school, China
- April 2021: Data Comics for Data-driven storytelling, DataViz Meetup, Toulouse, FR
- April 2021: Visualization Empowerment, iLab University of Calgary, AB

- Jan 2021: <u>Visualization Empowerment</u>, Open Lab, Newcastle University, UK.
- December 2020: The Immersive Canvas: Information Visualization in Immersive Environments, Keynote to Workshop ImAna at IEEE AIVR
- November 2020: Data Comics, Data Stories Symposium, Kings College London
- October 2020: Data Comics Guest Lecture, Kings College London
- January 2020: Keynote to Dealing with Data conference (Edinburgh): <u>Dealing vis Data</u>
- June 2019: Edinburgh Futures Seminar: Visualizing Peace and Conflicts
- May 2019: Kings College, London: Data visualization for exploration, explanation and beyond.
- December 2018: Shonan Seminar to Immersive Analytics (Tokio): Visualizing Space-Time Cubes in AR.
- October 2018: Tuto@Mate (online webinar): Interactive Visualization for Dynamic, Multivariate, and Geographic Networks.
- September 2018: University of Tilburg (Netherlands): Data Comics for Data-Driven Storytelling
- September 2018: Design Informatics Seminar Series (University of Edinburgh): Perspectives on Data Visualization.
- May 2018: Keynote for Workshop on Big Data Analytics and Business Applications, AVI Conference (Casteglione della Pescaia): Interaction Literacy for Data Visualization.
- May 2018: Tesco Bank: Data Visualization for Exploration, Explanation, and Engagement
- May 2018: OpenVis Conference (Paris): Drawing into the AR-Canvas: Designing Embedded Visualizations for Augmented Reliaty.
- March 2018: DataTech Fest Edinburgh: <u>Tools for Data Visualization</u>
- March 2018: Alan Turing Institute: Visualization for Interactive Data Exploration
- February 2018: Controversies in the Data Society Talk Series, (Edinburgh): Seven Myths about Data Visualization

Teaching

<u>Ongoing (2021/22):</u>
- Data Science for Design (20 Credits)
- Data Visualisation for Professionals (10 Credits)

<u>Past:</u>
- Data Visualisation (10/10Cts)
- The Human Factor, University of Edinburgh
- September 2017 – Data Science for Designers, University of Edinburgh
- December 2014 – [Interactive Information Visualization](#)
- Fall 2007 — Didactics and Media Psycholoy (TA)
- Fall 2006 — Didactics and Media Psycholoy (TA)

Supervision

PhD:
- Tobias Kauer (since Sept 2019, first supervisor)
- Mashael Hamad Alkadi(since Sept 2019, first supervisor)
- Ryan Bowler (since Sept 2019, first supervisor)
- Lucy Havens (since April 2020, second supervisor)

- Josh Lee (since October 2019, third supervisor)
- Sarah Schöttler (since Jan 2021, first supervisor),
- Kun Ting Chen (since Oct 2019, third supervisor),

Graduated PhD
- Zezhong Wang (2018-2022, first supervisor),

PhD Examiner

- **Catarina Maçãs**: Time-Series Visualization: Highligting Patterns and Deviations. Universidate de Coimbra, PT. July 2021
- **Evangelos Kanonides**: Use of Similarity Metrics Aiming to Identify Groupings of Entities with Clinical and Biological Significance. University of Edinburgh, UK, 2021

MSc by Research
- Vebjørn Halvfjerdvik (2019-2021, 2nd supervisor)
- Qiuyuan Ren (2017-2018)

Masters dissertations (39, since 2017)
- **2021**: Tashfeen Ahmed (MA), Luna Hu, Boao Huang, Ziyng Lin, Yeru Lin, Yanan Liu, Tamara Lottering, Sarah Olson, Jiangnan Xu, Minjia Zhao, Shenshen Ji, Chen Chen, Yu Zhao (MFA), Yuhao Zhang.
- **2020**: Jin Xiao, Bibo Tian, Yu Zhao, Li Haonan, Xue Feng, Kehan Jiao, Vaida Plankyte, Dandi Huang, Nistha Kumar.
- **2019**: Sarah Schoettler (MSc), Xinyu Du (MSc), Junxian Meng (MSc), Qinru Zhu (MSc), Yixin Liu (MA),
- **2018**: Finn Ickler (MSc), Xudong Jiang (MSc), Ilyas Zholdasbayev (MSc), Yiwei Sun (MSc), Yan Wu (MSc), Iqbal Rosiadi (MSc),
- **2017**: Edson Alcala (MSc), Parul Sharma (MSc), Ruobing Hao (MA), Xian Tang (MSc), Zezhong Wang (MSc).

BHons dissertations
- James O'Donell, Charles Shraples, Hirsh Agarwal, Alexander Olson, Veronika Dimitrova

Reviewing *(selection)*

- ACM CHI: since 2013
- IEEE InfoVis/Vast: since 2012
- TVCG: since 2011
- EuroVis: since 2012
- Graph Drawing
- Computer Graphics and Applications
- Creativity & Cognition 2021
- ISMAR 2021
- UIST 2021
- Workshop on Machine Learning and Visualization (EuroVis) 2020, 2021
- Vis4DH 2020
- Computer and Graphics 2021