

# Stan Nowak

PhD Candidate  
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Simon Fraser University

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I am a visualization and human-computer interaction (HCI) researcher. I am interested in using visualization to support complex sensemaking and risk-based decision-making, particularly under circumstances of ambiguity. I design, implement, and evaluate interactive visualization systems for solving real-world problems.

RESEARCH INTERESTS: Visual Analytics, Sensemaking, Human-Computer Interaction, Information Visualization

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## EDUCATION

### PhD 2017 -

Simon Fraser University Surrey, BC

SUPERVISION: Lyn Bartram, Pascal Haegeli and Wolfgang Stuerzlinger

THESIS: Visual Analytics to Support Complex Sensemaking under Ambiguity

### Bachelor of Arts in Cognitive Systems: Cognition and The Brain 2009 - 2014

University of British Columbia Vancouver, BC

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## EXPERIENCE

### Graduate Research Assistant 2017 -

Vancouver Institute for Visual Analytics Burnaby, Canada

SUPERVISION: Lyn Bartram

Designing and developing interactive visualizations for internal and external clients including but not limited to Avalanche Canada, BC Cancer Research Centre, and SFU internal departments.

Developing and delivering courses on visualization. (*D3.js*, *Tableau*, *Python*)

### PhD Research Intern 2022

Autodesk Toronto, Canada

SUPERVISION: Justin Matejka, Bon Adriel Aseniero, Tovi Grossman, Lyn Bartram, George Fitzmaurice

Explored the intersection of visual analytics and architectural CAD software through three qualitative studies. (*paper.js*)

### Graduate Research Assistant 2019 - 2020

SFU Avalanche Research Program Burnaby, Canada

SUPERVISION: Pascal Haegeli & Lyn Bartram

Conducted human-centered research to understand the work of public avalanche forecasters to inform the design of visual analytics tools. Developed visualization tools to aid exploratory analysis of physical snowpack models. (*D3.js*, *Tableau*, *Svelte*)

### Visualization Consulting 2016 - 2017

Self-employed Vancouver, Canada

Provided analytics and visualization support for clients in business intelligence, data journalism, and retail supply-chain management and distribution. (*D3.js*, *Tableau*, *Python*)

### Visualization Instructor and Consultant 2015 - 2017

Vancouver Institute for Visual Analytics Burnaby, Canada

Provided visual analytics training for academics and professionals and analytics consulting for industry clients. (*D3.js*, *Tableau*, *Python*)

### Cofounder 2014 - 2017

BuckMeUp.com Vancouver, Canada

Designed and developed front-end and business development of a freelance marketplace website. (*AngularJS*)

## Undergraduate Research Assistant

2014 - 2016

UBC Communication Dynamics Laboratory Vancouver, Canada

SUPERVISION: Eric Vatikiotis-Bateson

Developed software for experiments investigating audio-visual illusions. (*Python, Blender*)

## Undergraduate Research Assistant

2014

UBC Visual Cognition Laboratory Vancouver, Canada

SUPERVISION: Ron Rensink

Developed software for experiments investigating the effects of stress on visual cognition. (*Matlab*)

## Undergraduate Volunteer

2013

UBC Visual Cognition Laboratory Vancouver, Canada

SUPERVISION: Graham Healy & Ron Rensink

Designed and conducted experimental research investigating the effects of neurofeedback-training on video game performance. (*Matlab, Python*)

## Communication Dynamics Laboratory – Directed Studies Student

2012

UBC Communication Dynamics Laboratory Vancouver, Canada

SUPERVISION: Eric Vatikiotis-Bateson & Osman Ipsiroglu

Investigated the use of non-invasive crude motion-detection from 2D video used in monitoring and treatment of children with sleep-disorders. (*Matlab*)

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## PUBLICATIONS

### Archival Conference Proceedings (refereed)

- C4. **Stan Nowak**, Lyn Bartram (2022). I'm Not Sure: Designing for Ambiguity in Visual Analytics. In *2022 Graphics Interface*.
- C3. **Stan Nowak**, Lyn Bartram, & Pascal Haegeli (2020). Designing for Ambiguity: Visual Analytics in Avalanche Forecasting. In *IEEE Visualization Conference*.
- C2. **Stan Nowak**, Lyn Bartram, & Thecla Schiphorst (2018). A Micro-Phenomenological Lens for Evaluating Narrative Visualization. In *IEEE Evaluation and Beyond-Methodological Approaches for Visualization*.
- C1. Horton, Simon, **Stan Nowak**, & Pascal Haegeli (2018) Exploring regional snowpack patterns with gridded models. In *International Snow Science Workshop Proceedings*.

### Journal

- J3. **Stan Nowak**, Miriam Rosing, Wolfgang Stuerzlinger, & Lyn Bartram (2021). Integrating Clinical Knowledge in the Analysis of Natural Histories of Oral Cancer through Visual Analytics. In *Frontiers in Oral Health*
- J2. Simon Horton, **Stan Nowak**, & Pascal Haegeli (2019). Enhancing the operational value of snowpack models with visualization design principles. *Natural Hazards and Earth System Sciences*.
- J1. Robert A. Fuhrman, **Stan Nowak**, & Eric Vatikiotis-Bateson (2016). Evaluating how fine-grained changes in the spatial and temporal properties of audiovisual speech influence the perception of linguistic meter. In *The Journal of the Acoustical Society of America*, 139(4), 2046-2046.

### Short Papers

- R1. **Stan Nowak**, Lyn Bartram (2022). "Give Me the Data: Visual Analytics Needs to Go Beyond Visualization. In *ASCR Workshop on Visualization for Scientific Discovery, Decision-Making, & Communication*.

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## PROJECTS & SYSTEMS

### AviDdx Visualization System

2020 -

Designing and developing operational avalanche forecasting software visualizing various meteorological, citizen science, simulation, and remote sensing data. This work is being completed as part of a long-term research collaboration with Avalanche Canada for my thesis research. (*Svelte, D3.js, MapboxJS*)

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## TALKS

<b>Interactive Visualizations for Avalanche Hazard Assessment</b> Canadian Avalanche Association Spring Meeting Virtual Conference	2021
<b>Designing for Ambiguity: Visual Analytics in Avalanche Forecasting</b> 2020 IEEE Visualization Conference Salt Lake City, Utah	2020
<b>Visual Analytics in Avalanche Forecasting</b> Western Innovation Forum Burnaby, Canada	2020
<b>Visualization Design, Analysis, and Visual Thinking</b> SFU SciProg Research Commons Workshop Burnaby, Canada	2020
<b>Designing Visualization Tools for Avalanche Forecasters</b> Canadian Avalanche Association Spring Meeting Penticton, Canada	2019
<b>Principles of Data Visualization and Interpretation</b> SFU SciProg Research Commons Workshop Burnaby, Canada	2019
<b>Data Visualization: A Brief Introduction</b> UBC Cognitive Systems Guest Lecture Vancouver, Canada	2019
<b>A Micro-Phenomenological Lens for Evaluating Narrative Visualizations</b> BELIV Workshop Berlin, Germany	2018

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## AWARDS

<b>Helmut &amp; Hugo Eppich Family Graduate Scholarship</b> Amount: \$1200 Competitive scholarship to support intelligent systems science research	2022
<b>FCAT Graduate Fellowship</b> Amount: \$3500 Graduate fellowship for the Faculty of Arts and Technology	2021
<b>Presidents PhD Scholarship</b> Amount: \$7500 Competitive scholarship for students demonstrating scholarly output and leadership relative to peers	2021
<b>Andrew Wade Memorial Scholarship in Visual Analytics</b> Amount: \$7500 Competitive scholarship for graduate students specializing in visual analytics	2020
<b>Van Pykstra Graduate Scholarship</b> Amount: \$3700 Competitive scholarship to support intelligent systems science research	2020
<b>Graduate Fellowship</b> Amount: \$6500	2020
<b>SFU Big Data Graduate Scholarships</b> Amount: \$6500 Competitive scholarship to support big data research leaders	2019
<b>Graduate Fellowship</b> Amount: \$3250	2019

<b>FCAT Graduate Fellowship</b>	2019
Amount: \$3250 Graduate fellowship for the Faculty of Arts and Technology	
<b>Travel &amp; Minor Research Award</b>	2018
Amount: \$1000 Support for Travel and Research at <i>IEEE VIS 2018</i>	
<b>Andrew Wade Memorial Scholarship in Visual Analytics</b>	2018
Amount: \$6800 Competitive scholarship for graduate students specializing in visual analytics	

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## TEACHING

<b>Visual Analytics Two-Day Course – Teaching Assistant</b>	2019
INSTRUCTOR: Lyn Bartram 2-day overview of visual analytics for corporate clients. Aided development and delivery.	
<b>Introduction to Visual Analytics – Teaching Assistant</b>	2019
INSTRUCTOR: Lyn Bartram Simon Fraser University – School of Interactive Arts and Technology Designed, delivered, and graded tutorials and assignments.	
<b>Visual Analytics Half-Day Course – Teaching Assistant</b>	2018 - 2019
INSTRUCTOR: Lyn Bartram Developed and delivered visual analytics course for BC Government and climate researchers.	
<b>Visual Analytics Half-Day course – Instructor</b>	2017
Developed and delivered introduction to visual analytics for engineering students.	
<b>Management Information Systems – Teaching Assistant</b>	2016
INSTRUCTOR: Aym Amlani University of British Columbia – Sauder School of Business Developed and graded class exercises.	
<b>Andrew Wade Student Workshops – Instructor</b>	2015 - 2017
Vancouver Institute for Visual Analytics – UBC & SFU Developed and delivered 12-week introductory visual analytics course.	
<b>Analytics and interp. for Applied Sciences – Teaching Assistant</b>	2016 - 2017
INSTRUCTOR: Iain Begg Developed and delivered lab portion for the course.	
<b>SFU Continuing Studies Visual Analytics Certificate</b>	2016
Aided the development of two continuing studies course on visual analytics.	