

# BISWAKSEN PATNAIK

biswaksenpatnaik.design  
bpatnaik@umd.edu  
301-312-7264

## EDUCATION

### **University of Maryland, College Park**

Master of Science in Human-Computer Interaction | August 2017 - May 2019 (Anticipated) | GPA 4.0

**Thesis Advisor:** Prof. Niklas Elmqvist

### **National Institute of Technology Rourkela**

Bachelor of Technology in Industrial Design | July 2012 - June 2016

## EXPERIENCE

### **Human-Computer Interaction Lab, University of Maryland College Park**

Graduate Research Assistant | December 2017 - Present | USA

I am working in the VizTeam with Prof. Niklas Elmqvist on immersive analytics. My thesis research aims at exploring smells as a medium of conveying information and designing olfactory displays to support it.

### **Human-Computer Interaction Group, Hasso-Plattner Institute**

Research Intern | May 2018 - August 2018 | Germany

I worked with Prof. Patrick Baudisch. The research was primarily in the field of haptic interactions. I worked on designing efficient and low-cost force-feedback mechanisms for haptic devices that can be used to interact with spatial-virtual environments.

### **Wearable Computer Lab, University of South Australia**

Visiting Academic | February 2017 - May 2017 | Australia

I worked with Prof. Ross Smith with the co-supervision of Prof. Bruce Thomas. I worked on a project entitled "Investigating collaborative shape display interactions". Work included design and development of a shape display system incorporating projection mapping and implementation of user interface concept around the shape display technology.

### **Keio-NUS CUTE (Connective Ubiquitous Technology for Embodiments) Center, National University of Singapore**

Research Intern | May 2015 - July 2015 | Singapore

I worked with Prof. Ellen Yi-Luen Do and Dr. Nimesha Ranasinghe. I worked in the field of Multi-Sensory Interactions and Ubiquitous Computing on two research projects entitled "Digital Taste" and "Design of Tactile Wearable Communication Aid for Deaf Blind". Work included design of interactive ergonomic interfaces for the projects and conducting user studies.

### **Ergonomics Lab, Department of Design, Indian Institute of Technology Guwahati**

Research Intern | May 2014 - June 2014 | India

I worked on application of ergonomics in material handling systems and workstation design using Digital Human Modeling in a project entitled "Ergonomic Intervention Strategies in Injection Molded Plastic Furniture Manufacturing Industries in North East India".

### **Computer-Aided Design Lab, Department of Industrial Design, National Institute of Technology Rourkela**

Undergraduate Researcher | August 2015 - May 2016 | India

I designed and developed a novel sit-to-stand and mobility assistive device for ambulation and elderly. Research involved designing an automated sit-to-stand lift that replicates human gait.

## PUBLICATIONS

### **Information Olfaction: Harnessing Scent to Convey Data**

**Patnaik, B.**, Batch, A., & Elmqvist, N. (2018). Information Olfaction: Harnessing Scent to Convey Data. IEEE transactions on visualization and computer graphics.

### **Olfactory Analytics: Exploring the Design Space of Smell for Data Visualization**

**Biswaksen Patnaik**, Andrea Batch, and Niklas Elmqvist. 2018. Olfactory Analytics: Exploring the Design Space of Smell for Data Visualization. AVI 2018 Workshop on Multimodal Interaction for Data Visualization (May 2018). [https://multimodalvis.github.io/papers/AVI\\_2018\\_paper\\_148.pdf](https://multimodalvis.github.io/papers/AVI_2018_paper_148.pdf)

### **Design and Development of a Novel Sit-to-Stand and Mobility Assistive Device for Ambulation and Elderly**

Khan M.R., **Patnaik B.**, Patel S. (2017) Design and Development of a Novel Sit-to-Stand and Mobility Assistive Device for Ambulation and Elderly. In: Chakrabarti A., Chakrabarti D. (eds) Research into Design for Communities, Volume 1. ICoRD 2017. Smart Innovation, Systems and Technologies, vol 65. Springer, Singapore

### **Context-specific design interventions in blending workstation: an ergonomics perspective**

Sanjog, J., **Patnaik, B.**, Patel, T., & Karmakar, S. (2016). Context-specific design interventions in blending workstation: an ergonomics perspective. Journal of Industrial and Production Engineering, 33(1), 32-50.

### **A Cognitive Approach to Design of Habitats in Extraterrestrial Environments: Review of Literature**

**Patnaik B.** (2018) A Cognitive Approach to Design of Habitats in Extraterrestrial Environments: Review of Literature. In: Ray G., Iqbal R., Ganguli A., Khanzode V. (eds) Ergonomics in Caring for People. Springer, Singapore

## TEACHING

### **Teaching Assistant | INST 362: User-Centered Design | Fall 2018**

I am working as a teaching assistant for an undergraduate class INST362: User-Centered Design offered by I-School at the University of Maryland College Park. This course is taught by Prof. Amanda Lazar where I led a few classes on concepts such as Introduction to UX, Contextual Inquiry and Analysis, Ideation and Prototyping.

## SKILLS

### **Design:**

CATIA, SOLIDWORKS, Autodesk Inventor, ANSYS, Autodesk Sketchbook, Adobe Photoshop, Adobe Indesign, Adobe Premeire Pro, KeyShot, UNITY

### **Physical Computing:**

Arduino, Raspberry Pi

### **Programming:**

C, Python, HTML, CSS, JavaScript

### **Prototyping:**

3D Printing, Workshop Technology

### **Other:**

Design Thinking, Contextual Inquiry, Persona Building, Affinity Diagramming, Heuristic Evaluation, Cognitive Walkthroughs, Prototyping (Lo-Fi & Hi- Fi)

## AWARDS

### **HCIM Student Travel Award**

I was awarded the HCIM Student Travel Award by the I-School to present our paper on Olfactory Analytics at AVI 2018, Grosseto, Italy.

## MEMBERSHIPS

**ACM** - Association for Computing Machinery  
**SciArt Center**

## AREAS OF INTEREST

Tangible User Interfaces, Ubiquitous Computing, Multimodal Interactions, Data Physicalization