

# Korok Sengupta

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## AREAS OF INTEREST

User Experience, Hands-free Interaction(Voice User Interaction, Gaze Interaction), Data Science & Analytics

## PROFESSIONAL EXPERIENCE

Organisation	Designation	From	To
University of Stuttgart, Germany	Scientific Researcher	01.10.2020	Present
University of Koblenz-Landau, Germany	Scientific Researcher	01.04.2016	30.10.2020
Careons Global Healthcare, Noida, India	UX/UI Designer	09.11.2015	26.03.2016
Jawaharlal Nehru University, New Delhi, India	Researcher	20.04.2015	19.10.2015
University of Luxembourg, Luxembourg	Research Assistant	16.08.2013	01.09.2014
Development Consultants Pvt. Ltd, India	Design Engineer	01.11.2010	01.09.2012
Endress Hauser India Pvt. Ltd., India	Internal Sales	02.08.2010	29.10.2010

## ACADEMIC QUALIFICATION

Qualification	Specialization	Institute	Year	Results
PhD	Hands-free Interaction	University of Stuttgart	Ongoing	-
MS	Information & Computer Science	University of Luxembourg	2014	14.5/20
B. Tech	Instrumentation & Control Engineering	Academy of Technology, WBUT	2010	8.74/10
ISC (CISCE)	Science	Don Bosco School, Liluah	2006	81.75 %
ICSE (CISCE)		Don Bosco School, Liluah	2004	92.6 %

## SKILLS

Interaction	Software	Coding
User Research	Adobe CC	Python
Wireframing	Sketch	C
Prototyping	Figma	HTML+CSS
User Testing	InVision	Matlab
Persona Development	L <sup>A</sup> T <sub>E</sub> X	
User Flow		

## AWARDS

- **Best Student Paper Award** for *Analyzing the Impact of Cognitive load in gaze-based typing* at Thessalonki, Greece, 2017.
- **Judges Award at TPG Accessibility Challenge** for *GazeTheWeb:A gaze-controlled Web Browser* at Perth, Australia, 2017.

## PROJECTS

### Hands-Free Interaction (Research)

- Error correction using Voice and Gaze for hands-free experience.
  - Understand the strengths and limitations of voice and gaze input.
  - Develop strategies that optimize error correction time
  - Improve usability with fallback features
- Voice User Interaction (VUI) for Web Content Navigation.
  - Understand the need of VUI command and gaps in existing systems.
  - Develop strategies to reduce hops of interaction
  - Understand user needs for the final objective to be accomplished by voice.
  - User study on natural commands for given tasks.
- On-key text prediction placement for on-screen keyboard for gaze based typing.
  - Research and Design of a new keyboard design for eye trackers.
  - Persona development and use case scenarios.
  - Prototyping and initial user evaluation.
  - User study and performance evaluation against conventional on-screen keyboards.

- Using gaze and voice together for a wholesome hands-free interaction.
  - Understand limitations of gaze and voice.
  - Design Interaction that combines both naturally.
  - User study and performance evaluation against individual gaze and voice interaction.
- Voice based contextual text entry interaction.
  - Understanding strengths and weakness of voice based text entry.
  - Design experiment to expose different challenges of text entry.
  - Sketch and build prototypes for initial evaluation.
  - User study and performance evaluation against conventional hands-free text entry platforms (On-Going).

## Mobile Applications

- Airport Hospitality System Design that includes Food and Beverage, Lounge, Spa, Airport Transportation, Meet and Greet services.
  - Responsible for the entire UX work
  - User Interviews , Persona Development, and Information hierarchy formation
  - Sketches and Initial wire frames
  - High-level wire frames after reiteration
  - Design and develop prototypes for developers.
- Crowd-sourced skill based service platform
  - User interviews and understanding needs
  - Develop product goals based on user needs
  - Persona development and information hierarchy
  - High-level wire frames
- Hyper-local Shop finder
  - Understand product goals
  - Persona development
  - Initial Sketches and low-level wire frames
- E-health application connecting patients to information and doctors for initial e-consultation.
  - Responsible for entire B2C work flow and design integration
  - Understand POV of doctors, patients and pharmacies
  - Design Icon based interaction approach
  - Persona development across different socio-economical perspectives
  - User Journey for non-English literate people and doctors on the platform
  - Integrate quick and easy payment gateway access

## PUBLICATIONS

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- [1] Chandan Kumar, Raphael Menges, **Sengupta, Korok**, and Steffen Staab. Eye tracking for interaction: evaluation methods. *Signal Processing to Drive Human-Computer Interaction: EEG and Eye-controlled Interfaces*, page 117, 2020.
  - [2] **Sengupta, Korok**, Sayan Sarcar, Alisha Pradhan, Roisin McNaney, Sergio Sayago, Debaleena Chattopadhyay, and Anirudha Joshi. Challenges and opportunities of leveraging intelligent conversational assistant to improve the well-being of older adults. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, CHI EA 20, page 14, New York, NY, USA, 2020. Association for Computing Machinery.
  - [3] **Sengupta, Korok**, Sabin Bhattarai, Sayan Sarcar, I. Scott MacKenzie, and Steffen Staab. Leveraging error correction in voice-based text entry by talk-and-gaze. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, CHI '20, page 11, New York, NY, USA, 2020. ACM.
  - [4] **Sengupta, Korok**, Raphael Menges, Chandan Kumar, and Steffen Staab. Impact of variable positioning of text prediction in gaze-based text entry. In *Proceedings of the 11th ACM Symposium on Eye Tracking Research & Applications*, ETRA '19, pages 74:1–74:9, New York, NY, USA, 2019. ACM.
  - [5] **Sengupta, Korok**, Min Ke, Raphael Menges, Chandan Kumar, and Steffen Staab. Hands-free web browsing: Enriching the user experience with gaze and voice modality. In *Proceedings of the 2018 ACM Symposium on Eye Tracking Research & Applications*, ETRA '18, 2018.
  - [6] **Sengupta, Korok**, Raphael Menges, Chandan Kumar, and Steffen Staab. Gazethekey: Interactive keys to integrate word predictions for gaze-based text entry. In *Proceedings of the 22nd International Conference on Intelligent User Interfaces Companion*, IUI '17 Companion, 2017.
  - [7] **Sengupta, Korok**, Jun Sun, Raphael Menges, Chandan Kumar, and Steffen Staab. Analyzing the impact of cognitive load in evaluating gaze-based typing. In *2017 IEEE 30th International Symposium on Computer-Based Medical Systems (CBMS)*, 2017.

- [8] **Sengupta, Korok**, Chandan Kumar, and Steffen Staab. Introducing usability heuristics for eye-controlled user interfaces. In *The 2017 COGAIN Symposium: Communication by Gaze Interaction*, Aug 2017.
- [9] Raphael Menges, Chandan Kumar, Daniel Müller, and **Sengupta, Korok**. Gazetheweb: A gaze-controlled web browser. In *Proceedings of the 14th Web for All Conference on The Future of Accessible Work, W4A '17*, 2017.
- [10] Nicolas Louveton, **Sengupta, Korok**, Rod McCall, Raphael Frank, and Thomas Engel. Testing a commercial bci device for in-vehicle interfaces evaluation: A simulator and real-world driving study. *International Journal of Mobile Computing and Multimedia Communications (IJMCMC)*, 8(2).
- [11] Raphael Menges, Chandan Kumar, **Sengupta, Korok**, and Steffen Staab. eyegui: A novel framework for eye-controlled user interfaces. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction, NordiCHI '16*, 2016.