Mariam Hassib

Researcher in Human-Computer Interaction

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PROFILE

I am a postdoctoral researcher currently working at the intersection of HCI, Usable Security and Physiological Sensing for analyzing human behavior in security-critical tasks. During my PhD I worked on developing novel communication technologies which sense users' emotions and cognitive states leveraging a myriad of physiological sensors such as heart rate, EEG, and eye tracking . My research approach comprises both qualitative and quantitative research methods. I have led multidisciplinary teams of 3-8 people on 30+ publications (H-Index 17 , Google Scholar). Apart from academia, I gained professional experience through working as a UX researcher in two startups, did my bachelor thesis in Daimler AG (Ulm), and interned in Sony (Stuttgart).

EXPERIENCE

Since 09/18 - Parental Leaves: [09/18 - 08/19] and [12/20 - 11/21]
Post-doctoral Researcher
Usable Security & Privacy (CODE), Bundeswehr University, Munich
- Research on social engineering, analyzing human behavior using environmental/ physiological sensors to create secure applications
- Material preparation & presentation of Usable Security course, coaching and supervision of 10+ bachelor and master thesis students

04/14 - 08/18
HCI Researcher - Media Informatics, LMU Munich

- Research on physiological sensing, affective computing, enhancing communication technologies
- Supervision of 20+ bachelor and master thesis students
- Teaching several lectures and seminars on Advanced Media Informatics, Physiological Sensing and HCI.

03/13 - 12/13
UX Researcher - Trustious (Reviews Platform), Cairo, Egypt

- Contributing to the first online reviews platform in Egypt covering categories such as: Books, Restaurants, Education, and Home.
- Conducting focus groups/interviews, usability testing, card sorting, competitive research.
- Designing wireframes, lo-fi prototypes and user flows across features such as: sign-up and initiation flow, search, reviewing, category/item pages.
- Integrating Lean startup methods.

12/10 - 02/13
UX Researcher - Arability (UX Consultancy), Cairo, Egypt

- Working with various customers (telecom, hotels, schools) to enhance existing mobile/web applications by applying Heuristic evaluations & user testing, wireframing, personas, and   reporting on findings to stakeholders.

12/12 - 01/14
Image Processing Intern- Sony STC , Stuttgart,

- Image extraction and text recognition of subtitles in videos using MatLab

03/09 - 08/09
UX Design Intern, Infotainment Systems, Daimler AG, Ulm

- Research on the challenges of integrating Arabic in Automotive UIs
- Design and implementation of Arabic UI for phonebook , and radio display

EDUCATION

04/14 - 08/18
PhD in Human Computer Interaction
LMU Munich, Media Informatics

Dissertation: Designing Communication Technologies based on Physiological Sensing
Focus: HCI, Affective computing, physiological sensing, applied machine learning.

10/10 - 11/12
MSc. Computer HW/SW Engineering
INFOTECH, University of Stuttgart

Thesis: Mental Task Classification using Single Electrode Brain-Computer Interfaces
Focus: SW Engineering, HCI
Grade: 1.4

09/05 - 09/10
Bachelor of Digital Media Engineering German University in Cairo— Egypt

Thesis: Integration of Arabic Language in GUI of Cars, Daimler AG (Ulm)
Focus: Computer Science, Media Informatics
Grade: 1.04 (High Honors, top 5%)

SCHOLARSHIPS & AWARDS

04/14 - 03/18
DAAD PhD Scholarship (GERLS)
Chosen among 70 scholars from all of Egypt to complete my PhD in Germany

01/14 - 03/14
DAAD German Language Scholarship
For finishing the B2 Goethe German language Certificate in Göttingen

06/11
Google Anita Borg EMEA Finalist
Chosen among 75 scholars & finalists from the whole EMEA region to attend Google Scholars Retreat in Zürich

03/09 - 08/09
GUC Bachelor Thesis Scholarship
For being in the top 3 students in my major, sponsoring a 6 month stay in Ulm

SELECTED PROJECTS

In-Car Emotion Recognition and Presentation using Physiological Sensors and Ambient Light

We developed a novel concept for detecting and influencing driver emotions using physiological sensing for classification and ambient light for feedback. We evaluated our concept with 12 drivers on a **driving simulator** with a fully equipped car. We use three ambient lighting conditions (no light, blue light , and orange light). **Using a subject-dependent random forests classifier with 40 features we achieve an average accuracy of 78.9% for classifying valence and 68.7% for arousal.** Driving performance was enhanced in conditions where ambient lighting was introduced. Both blue and orange lights helped drivers to improve lane keeping.
For more information, please find the full paper here.

HeartChat: Heart Rate Augmented Mobile Messaging

We created, designed, and evaluated a **mobile chat application**, HeartChat, which integrates heart rate as a cue to increase awareness and empathy. Through a literature review and a **focus group,** we identified design dimensions important for heart rate augmented chats. We created three concepts showing heart rate per message, in real-time, or sending it explicitly. We tested our system in a two week **in-the-wild study** with 14 participants (7 pairs). Interviews and questionnaires showed that HeartChat supports empathy between people, in particular close friends and partners. Sharing heart rate helped them to implicitly understand each other's context (e.g. location, physical activity) and emotional state, and sparked curiosity on special occasions

For more information, please find the full paper here

EngageMeter: Audience Feedback Sensing with Electroencephalography

Obtaining information about audience engagement in presentations is a valuable asset for presenters in many domains. Prior literature mostly utilized explicit methods of collecting feedback which induce distractions, add workload on the audience, and do not provide objective information to presenters. We present EngageMeter – a system that allows **fine-grained information on audience engagement** to be obtained implicitly from multiple brain-computer interfaces (BCI) and to be fed back to presenters for **real time and post-hoc access**. We conducted an **in-the-wild evaluation** during an HCI conference (11 attendees and 3 presenters). We found that EngageMeter provides value to presenters (a) in real-time, since it allows reacting to current engagement scores by changing tone or adding pauses, and (b) post-hoc, since presenters can adjust their slides and embed extra elements. We discuss how EngageMeter can be used in collocated and distributed audience sensing as well as how it can aid presenters in long term use.

For more information, please find the full paper here.

SKILLS

Experiment Design & Research Methods
Design of suitable lab and remote experiments with valid and measurable outcomes, field studies, online surveys, experience sampling studies

Qualitative Research Methods
Conducting focus groups, interviews, thematic analysis, open coding

Data & Statistical Analysis
SPSS, applied Machine Learning and Signal Processing

Physiological Sensing
Electroencephalography, Electromyography, Eye tracking, heart rate

Project Management
Requirements analysis, team organization

Web and Mobile Development
HTML/CSS, JS, Android

Languages
English (fluent), German (fluent), Arabic (mother tongue), French (elementary)

TEACHING

Usable Security Lecture UniBW: 2020
Proseminar Media Informatics LMU: SS18
Advanced Topics of HCI LMU: SS15, SS16, SS17
Advanced Seminar on Media Informatics LMU: SS15, SS16

RESEARCH SERVICE

Program Committee
MUM'16-20, HAI'20, Augmented Human'16,'20, Mensch-und-Computer'15-18, AutoUI'15

Reviewing
Since 2016, Continuously reviewing for: CHI, UbiComp/IMWUT, INTERACT, MobileHCI, Mensch und Computer, NordiCHI, IDC, ToCHI, and other HCI venus.

Student Volunteer
MuC'15, IoT'16