KEFAN XU

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Education

University of Michigan
August 2019 – May 2021 | Ann Arbor, Michigan
Master of Science, GPA: 4.0/4.0
Information Science

New York University Shanghai
2015 – 2019 | Shanghai, China
Bachelor of Science, GPA: 3.59/4.0
Data Science & Interactive Media Arts

Tel Aviv University
July – August 2016 | Tel Aviv, Israel
Business Entrepreneurship

Skills

Machine Learning • Data Structure
Information Visualization • Databases
Develop Mobile Experience • AR/VR
Usability Evaluation • UI/UX Design
Fundamental Human Behavior
Design Consumer Health Technology
Graphic Design • Interactive Motion Design
Interaction Design • 3D Modeling

Tools

Unity • Git • Jupyter Notebook
Visual Studio Code • Xcode
Adobe Creative Suite
(Ai, Ps, Ae, Au, An, Pr)
Sketch • Invision • Figma
Tableau • NVivo
Hype 3 • Microsoft Office

Programming Languages & Libraries

Python • Java • C++ / C# • Swift
HTML / CSS / JavaScript • React Native
Processing • R
MySQL • d3.js / p5.js
ARKit • TensorFlow

Awards & Publications

• **Kefan Xu**, Xinghui Yan, and Mark W. Newman. 2021. Understanding People's Experience for Physical Activity Planning and Exploring the Impact of Historical Records on Plan Creation and Execution. 1, 1 (September 2021), 23 pages
- Conditionally accepted by ACM CHI22 (acceptance rate:12.5%)

• IHPI/HSR Summer Student Fellowship

• NYU Founders Day Award

• FaceX: World's First Facial Sketch Dataset for Neural Network Training
https://facex.idvxlab.com

• Tel Aviv University Summer Scholar Program – Half Scholarship

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Research Experience

Leveraging large-scale national data to understand, reduce, and prevent benzodiazepine-related harms among older adults
Developer & Researcher
Advisor: Donovan Maust, Associate Professor, Department of Psychiatry, University of Michigan
Associate Director, Geriatric Psychiatry Program
Research Scientist, Ann Arbor VA Center for Clinical Management Research
May – Present 2021 | Ann Arbor, Michigan

• Designed and deployed a clinician-facing website to facilitate communication between clinicians and patients about benzodiazepine misuses.
• Designed the taper calculator algorithm for clinicians to generate taper schedules for patients.
• Innovated tracking mechanisms for clinicians to track patients' progress on taper.
• Conducted cognitive interviews with clinicians to assess their experiences of using the website in routine care.

Examining the Effect of Summary of Historical Planning Data on People's Planning and Execution of Subsequent Daily Physical Activity, Developer & Researcher
Advisor: Mark Newman, Professor of Information, School of Information and Professor of Electrical Engineering and Computer Science, College of Engineering, University of Michigan
January – Present 2021 | Ann Arbor, Michigan

• Assessed people's experiences of planning regular moderate aerobic exercises with historical planning records.
• Developed an iOS app called Physicify, which allows users to plan for physical exercise and reflect on their previous planning records from various perspectives.
• Designed a two-stage user study to assess participants' experience of planning for physical exercise with and without historical data presented on the Physicify app.
• Conducted a 28-day user study with seventeen participants to understand their experiences of using Physicify; Conducted qualitative data analysis using Nvivo.
• Findings from this study suggested that people could use historical planning records to inform planning for future physical exercise by drawing connections between their failure records and identifying different levels of uncertainty in their future schedules.

Low-burden Activity Pacing for Chronic Fatigue Self-Management, Developer & Researcher
• Advisor: Mark Newman, Professor of Information, School of Information and Professor of Electrical Engineering and Computer Science, College of Engineering, University of Michigan
• Co-advisor: Pedja Klasnja, Associate Professor of Information, School of Information, University of Michigan
May – December 2020 | Ann Arbor, Michigan

• Developed seven tracking-reporting mechanisms (Proactive, Signal-Based, Event-Based, Post-Activity, Time-Based, Context-Based, CAR) based on prior literature about self-tracking.
• Created seven hybrid solutions for developing Experience Sampling Methods as low-burden reporting method for people with limited energy levels.
• Learned from cardiac rehab patients' practices of performing daily physical activities from prior literature and developed a mobile app that adopted the concept of activity pacing.
• Developed a recurrent tracking-reflection mechanism for people with chronic conditions to manage their daily energy expenditure, and developed mobile app prototypes based on it.
• Implemented the activity pacing platform, Pace to Plan using React Native and Google Firebase.

Intelligent Design of Emotional Expression Sketches in Storyboards
Research Intern
Advisor: Prof. Nan Cao, Director, Intelligent Big Data Visualization Lab, Professor, Tongji University
Adjunct Professor, NYU Shanghai & Tandon
May – September 2018 | Shanghai, China

• Collected Facial Sketch Dataset FaceX, a facial sketch dataset that contains five million vector-drawing sketches for Sketch-RNN based neural network.
• Used Facial Sketch Dataset FaceX as the training dataset to train EmoG, which was a sketch-rnn based emotional expression generator.
• Recruited twenty-one participants and conducted a user study regarding their experience of using EmoG to create storyboards with accurate emotional expressions.
• Evaluated the effectiveness of EmoG's ability to help designers create storyboards that can accurately deliver emotions; Analyzed the result quantitatively by carrying out ANOVA testing using SPSS.
• Demonstrated that EmoG was easy to use and could help people create effective expression drawings.

Project Experience

Financial Services Web Portal Design for Micro-Employers, UX/UI Designer
Multidisciplinary Design Program | Principal Financial Group,
January 2020 - December 2020 | Ann Arbor, Michigan
Created a website that addressed the needs of micro-employers for information, advice, and support.

• Conducted background research on the micro-business financial market and needs-finding interviews with micro-business owners.
• Developed the prototypes for the web-based financial services and conducted three major iterations with the developing team.
• Held usability testing with the targeted group of users and summarized up the findings.

mARze, Coder, Visual Designer,
Advisor: Professor Michael Nebeling
February – May 2021
Designed a marker-based AR app aimed to train children's logical thinking ability and spatial awareness in a safe way.

• Developed app using the Vuforia packages in Unity.
• Applied real-time collision detection and physical effects.
• Designed the gaming mechanism, which included multiple levels of difficulty, timer, hint systems and scoring system.

Doodling +, Coder, Designer,
Advisor: Professor Micheal Naimark
February – May 2019
Designed a multi-player AR Doodling app aimed to improve community participation using Apple's ARKit.

• Built an instagram-like online community that allows users to post and share their works with Google's Firebase as backend.

Color & Emotion, Coder,
Advisor: Professor Nan Cao
September – December 2018
Designed a web-based information visualization project that visualized the terms of color extracted from 83,000 traditional Chinese poems and linked them to the poets' emotions.

• Processed raw data from 311,000 Chinese traditional poems using existing Python modules, such as Chinese text segmentation module and word cloud module.
• Organized findings into three interactive visualizations (bubble chart, sanky chart, force-directed layout) using D3.js, allowing users to explore the connections between color terms and poets' emotions.
• Structed visualizations into an interactive website using Hype.

Hand with Heart, Coder, Visual Designer,
Advisor: Professor Antonius O Wiriadjaja
September – December 2015
Designed an interactive project aimed to mitigate social anxiety through indirect interaction, utilizing motion tracking to map multiple users' hand movement into one interface.

• Utilized Leap Motion to track users' hand movement and mapped it into graphic components using Processing.
• Implemented Processing's web framework to enable screen sharing between users from different locations.
• Connected the virtual events, such as the virtual representation of users' hands meeting one another, with physical installations built by Arduino to trigger visual effects.