#61 – BEYOND SMARTPHONES, EMERGING STRECHABLE/FLEXIBILE WEARABLES EXPLORATION IN THE INTERNET OF THINGS

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• Industry Partner: Sooyeon Seo (sooyeon.seo@samsung.com), Principal Investigator, Samsung Electronics (Samsung Advanced Institute of Technology & Samsung Research America)

• Project Synopsis: The goal of this research project is to explore opportunities spaces of the emerging stretchable/flexible wearables in the era of the Internet of Things. Our industry partner seeks new form factors, experience, or product/service concepts, which will be next big paradigms beyond current use of smartphones. Considering the previous year's research team's outcomes (JOEY project), the new group of students this year will have an opportunity to explore a topic either on their own or one of previously defined topic areas. Students will collectively collaborate together as a team to create such compelling user experience associated with medium-high fidelity stretchable/flexible prototypes, as well as define emerging technologies to be chosen to achieve such expected compelling user experience. This year, we expect to make close collaboration with the industry partner and flexible/stretchable wearable research teams at Stanford University.

- Expected Project Outcomes:
  - Flexible/stretchable wearable market research/trend
  - Literature review
  - Design Research Results
    - Date Collection (Interviews, observations, surveys)
    - Frameworks (2x2 Metrics, Personas, User journey maps)
    - Compelling Concepts
    - Prototypes (Low, medium and High fidelity)
    - Product Portfolio, IoT Roadmaps, Feature Sets

- Technical Challenges: Advanced prototyping skill-sets such as mechanical design (e.g., Solidworks, NX, and etc.) and experience in Coding (e.g., C, Java) and mobile (and web) app design and development (e.g., i-OS, Android,). In-depth design research to find compelling user needs. An ability to fluently use skin-type prototypes for user testing. Some knowledge on Material Science and Engineering field (Optional).

- Project Background: Flexible/stretchable electronics technologies have the opportunity to disrupt the wearable space with applications that might include new form factors, functions, and services (in various categories: healthcare, life management, social to personalization). New stretchable/flexible electronics have the potential to be game-changing technologies for wearable patch-like devices. In order for their use in wearables to be more attractive they need compelling user experience, killer scenarios, and functionalities, the advanced student team is encouraged to

perform in-depth human-centered design research associated with this cutting-edge emerging technology.

- Website to research projects http://best.berkeley.edu/best-research/samsung-next-digital-and-the-internet-of-things/
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- Download our research team brochure https://euiyoungkim.files.wordpress.com/2013/01/booklet_final_0707.pdf

- Tools and Equipment Provided:
  - Access to working/brainstorming space, located in 4th floor, CITRIS Building.
  - Access to Prototyping/machine shop in ME department, the Invention Lab (1st floor, CITRIS building), and BEST Lab (Hesse Hall #230)
  - Funding for prototyping materials, supplies purchase
  - Support for mobile devices for prototyping/testing (e.g., Smartphones, Tablets, Smart Watch, etc.)
  - Funding for producing project posters, brochures, booklets, and etc.

• Project Objective/Deliverable: The goal of this research project is to identify user needs to explore disruptive opportunities in order to develop innovative emerging flexible and stretchable product/service concepts inspired by human-centered design approach. This inter-disciplinary research team expect to working closely with internal and external stakeholders: Industry sponsor, internal and external collaboration groups. (e.g. integration team members in BEST Lab, and research teams at Stanford University.)

- Project Objectives
  I. Better understand how people currently use and perceive of opportunities with flexible/ stretchable/patch wearable and IoT devices
  II. Identify what kind of functions people desire to have for flexible/ stretchable/ patch-type devices;
  III. Identify what new experience would motivate people to adopt a new digital media device away from traditional ones or move to new stretchable and flexible wearable form factors; develop product and UX service concepts (tangible, digital or hybrid) that enhances sensorial experience with soft wearable devices

• Ideal Team Size: 4-5 people

• Skill Set Needed: Prototyping Experience (e.g., 3D printing, Laser cutting, 3D CAD, Coding, and etc.), Programing Experience (i-OS, Android), Qualitative and Quantitative Research Experience (e.g., interview, observation, or online survey), Project Management (Optional), Product Design and Development (Optional), Material Science and Engineering academic background (Optional)