

RouterSense: turning existing home routers into scalable, low-cost, long-term, passive health sensors

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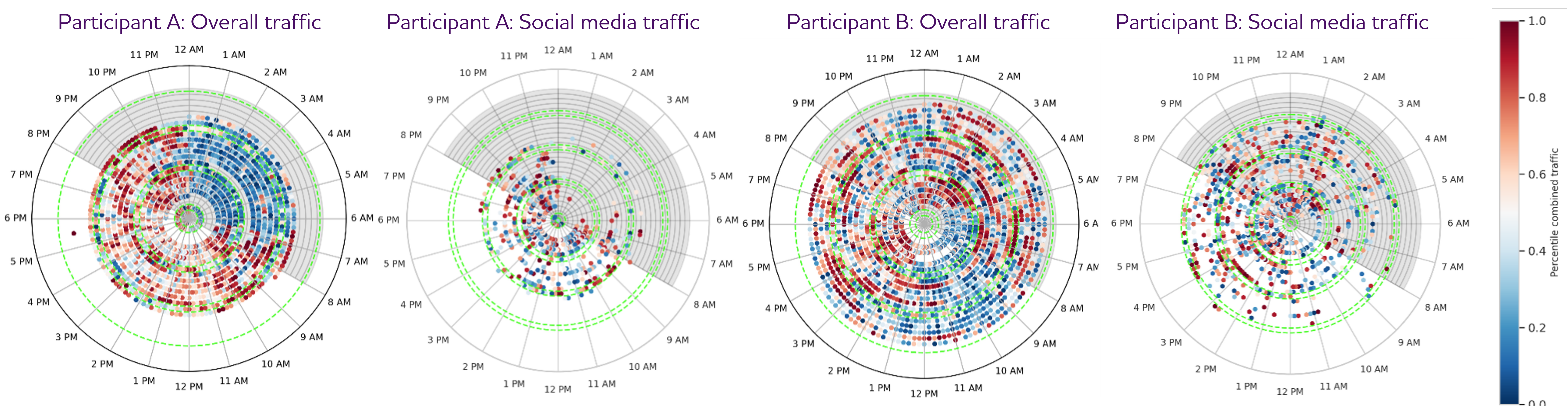


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Tracks sleep, location, screen usage, social habits, anomalies, etc

Scales to large population, long time

Already collaborating with neurologists, psychologists, cardiologists, ophthalmologists, etc



INTRODUCTION	METHODS	RESULTS	SUMMARY	REFERENCES
Traditional long-term, passive monitoring often requires hardware or dedicated phone apps <u>Challenges</u> • Cost, compliance & adherence issues for hardware • Battery and operating system compatibility issues for phone apps <u>Goal</u> How to scale over large population, long duration, cheap?	To complement existing techniques, we turn existing Internet traffic at home and on your mobile devices into passive health sensors: • Always-on, set-and-forget • Hardware-free, low-cost • Easy to maintain • Agnostic to device and operating system types – across phones, computers, game consoles, TVs; iOS, Android, Windows, Mac, Roku, etc	Pilot study with 27 NYU students across diverse majors Had the RouterSense VPN on their phones for 14 days Conducted a study focusing on two primary outcomes. • <u>Feasibility</u>: continuous Internet traffic capture for 14 days • <u>Acceptability</u>: “connect and forget”; trust in our privacy practices; observed banking, video, social media, messaging apps on participants	<u>Broader Impacts</u> • New paradigm in healthcare research: Internet traffic as a sensor • Democratizes access to health insights for researchers <u>Ongoing Work</u> • Internet traffic’s correlation with sensors; with Oregon Center for Aging & Tech (ORCATECH) • RouterSense + Condition X • Population trends at scale	The Collaborative Aging Research Using Technology Initiative: An Open, Sharable, Technology-Agnostic Platform for the Research Community. <i>Digital Biomarkers</i>, 2020. Keeping the Smart Home Private with Smart(er) IoT Traffic Shaping. <i>Proceedings on Privacy Enhancing Technologies Symposium</i>, 2019. CONTACT See https://routersense.ai 