Circadian computing: Towards a bodyclock friendly smartphone

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Introduction

- Circadian rhythms
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- Chronotype
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- Circadian rhythms
- Chronotype
- Sleep disruption and stabilization
Our Work

- Awareness
  - Sensing

- Feedback
  - Visualization
  - Recommendation
Circadian Sensing

- 97 day study, 9 participants
- Munich Chronotype Questionnaire (MCTQ)
- Android app
  - Calls
  - SMS
  - Location
  - Browser search
  - Browser history
  - App usage
  - Screen usage
Inferring Sleep Duration

- Screen on/off
- Unobtrusive
- Accurate within 45 minutes
Sleep deprivation & social jetlag
Sleep Inertia

- Early chronotype
  - Weekday
  - Weekend

- Late chronotype
  - Weekday
  - Weekend

Bar chart comparing minutes of sleep for early and late chronotypes on weekdays and weekends.
Feedback

- Awareness
- Reflection
- Intervention
- Stabilization
Awareness & Reflection
Intervention & Stabilization
Thank you!

- Individual rhythms
- Sensing
- Feedback