CCi-MOBILE Research Platform for Cochlear Implants and Hearing Aids

Updates and Future Directions

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UTD 2017 Platform – at a glance



Re-configurable, mobile, powerful, and user-friendly

Compatible with:

- Cochlear implants (Cochlear Corp.)
- Hearing aid transducers

Supports:

- Unilateral and time synchronized
 Bilateral electric stimulation
- Synchronized acoustic stimulation bimodal/electric+acoustic stim.

Modes:

- Laboratory-based benchtop
- Android for field trials
- Plug-and-play
- Portable, wearable
- On-the-go adjustment of sound processing parameters



UTD PC-based configuration





UTD Android-based configuration







Mobility with Android

Evaluate algorithms outside the lab in everyday naturalistic environments











UTD On-the-go adjustments

Configure MAP parameters on-the-go with custom Apps suited to your experimental needs







TD Real-time MATLAB capabilities

Implement algorithms in MATLAB or use exiting MATLAB routines



Flexibility like never before



Applications Suite



Broad range of MATLAB and Android applications to help you get started



UTD Subjective Evaluations

On all measures of test material, the CCi-MOBILE platform achieves equivalent speech recognition performance to the clinical processor



Percentage correct mean speech recognitions scores with clinical processor and CCi-MOBILE research platform. Error bars represent SEM. N = 8.





Availability

Open source software, and Hardware available to the research community







FDA guidelines

- CCi-MOBILE platform is meant for "non-clinical" experimental investigation of research ideas
- Platform does not fall under the scope of an FDA IDE
- Your organization must have IRB approval from your respective institution to conduct any human testing.
- CRSS-CILab submitted an Overview Summary of CCi-MOBILE to FDA to assess FDA-IDE status; their response:

"...we have determined that your study does not fall within the scope of the IDE regulation, and an IDE application is not required to be submitted to FDA for your proposed study." FDA – Feb., 2017





Further Details

Hands-on Workshop

Wednesday, July 19th at 2:30 – 3:30 pm Location:

- "Alumni" Room next to indoor dining room
- Will provide details on:
- obtaining a CCi-MOBILE platform package
- available software suite
- sample routines & use for benchtop & field use







- ♦ Advance technical capabilities of the platform.
- Improve wearable design of the system to facilitate field trials.
- Improve software with custom applications for noise suppression and speech enhancement.
- Improve battery life.
- Make available to broader research community.
- Continue improvement at several fronts.
- Hold annual workshops at CIAP, ASA, and UTD.







CRSS - Cochlear Implant Laboratory