Questions for Daniel Wagenaar Concerning MEABench

- When was the MEABench project started?

    • **1999**, ·Did not start as o.s.   ·open-source was not common
    2000   ·"Free software"   term.
                                                   ·**2004** paper was first.

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- What inspired you to create MEABench?

    • At the time, working w/ Animals
    • MCS software → very hard to get data into useable format.
    • ~~spring 2000~~ RT was huge limitation.
    • ~~MEA~~ First version was not modular. → too many bugs.

- Where there any existing open source solutions when you started? I mean this in the loosest sense because dissemination software such as git and SVN were not widely used outside of the hardcore code world in the early 2000s. Were labs willing to share their 'custom' solutions at all (e.g. I know Bruce Wheeler did a fair bit tech development during that time.)

    • web was just starting, very hard to find anything.
    • search engines not really around. → Alta vista.
        ↳ No way to create visibility for ~~software~~ project.
    ~~software~~   • MCS shared specs for cards.

- If there were open solutions, what were they missing?

- What do you feel open source provides that (proprietary) commercial solutions do not? and vice-versa?

    • major pain: huge time sink.   • Hackability: e.g. SALPA.
    • make it do what you need w/o talking to pple who
      have different agenda.   [against]: staff at commercial ventures
    • customizeability.   provide better support.

- How much was the hardware when you created MEABench (MEA, 60 Channel MCS amplifier, 128 channel MCS Card, Computer)

+ MEA: $400.00 each
+ Amplifier: $12K.00   paying for dev. MCRack.
+ A/D card: 64 chan, ~~$12000~~
+ Computer:

$50,000/ system.   128 ~~2007~~.   (1k/chan.)   NI cards. were cheaper.

- Anything else about the system's history that comes to mind?

    - exciting to do MEABench + RAS.
        ↳ by making them ~~open~~ its
          helped spread the science.
        ↳ sharing tech can bring together
          communities.
        ↳ tenure: technology dev. is largely
          ignored. only publishable stuffs.

Interoperability is not cared about by commercial ventures

Some questions for Matt concerning the creation of A/D

Developed w/ KC → he then started "Dataware". He then did the software programming. Amps →

- When was the A/D project started? — *

1994. In AZ, modified iversion of Neuralynx? Pre-nL. Oulle "discovery" modified from hardware in Bruce's lab to record stereotrodes. It was Huck. curr in house

- Why did you create A/D?

* · control over hardware + software.
(· Discovery → no access to source hard to modify.
· Being dependent on any 3rd party means your future is tied to them. - Esp. Hardware.

- What problems did A/D solve -- i.e. what did it allow that could not be bought commercially?

> · DOS was used for online visualization.
· windows was not capable of this.

- What was the hardware like at the time? Were you using commercial amplifiers, or were the NeuraLynx amps created for system?

· $25,000 for Discovery software license! (closed-source)
· A/D was free. 2.5k/amp + 2.5k/comp + 1.5k/A/D = 6.5k/8chan. #40,000
· Targeting Neuralynx precursor amps. (8 chan/amp, ~) 2.5k

- What was the community like at the time? Were people sharing code and hardware ideas outside of formal publications? How?

- Was there any infrastructure to support open-source development in Neuroscience? Was the community for it, against it, or agnostic and or ignorant?

· No sharing infrastructure.
· Most code was reverse engineered.
· register programming.

• No way of policing quality.

- How much would you estimate the cost of the 48 channel A/D system used in the Science papers was? (Including acquisition computers and amplifiers)
- Alternatively, how much per amplifier? How much per computer, how many channels per amp/computer?

~$64,000 for 64 chans.

- Anything else about the system's history that comes to mind?

· Loren Frank took the reigns. after lower level drivers were taken care of
· very small community, based around multi-tetrode recording

- This is also why MWL developed there own headstages.
· company actually went out of business!