2023 In Review & Goals for 2024

Outline

- Team
- Papers
- Grants and Funding
- Putting the year in context: reviewing past goals and progress
- Anticipated goals and challenges for 2024

Team 2023

Graduations

- Erica Baller: Faculty at Penn
- Sydney Covitz: Stanford Bioengineering PhD Program
- Bart Larsen: Faculty at UMinn
- Linden Parkes: Faculty at Rutgers
- Sheila Shanmugan: Faculty at Penn
- Valerie Sydnor: Post-doc at Pitt
- Jake Vogel: Faculty at Lund University
- Chenying Zhao: Engineer at GE China

New Team Members

- Lizzie Flook (psychiatry research track resident)
- Isa Stallworthy (post-doc w/ Dani Bassett)
- Kevin Sun (NGG PhD student w/ AAB)

Team 2024

Graduations

- Lia Brodrick: masters in SW
- Kahini Mehta: neuroscience PhD
- Arielle Keller: faculty position
- Nob Premrudeepreechacharn: grad school vs. industry

New Team Members

- Laura Pritschet (post-doc)
- Steven Meisler (post-doc)
- Parker Singleton (post-doc, remote)
- TBD lab manager
- TBD clinical research coordinator
- Rotating students:
  - Hannah Gura (NGG, spring 2024)
  - Briana Macedo (GCB, fall 2024)

Publications 2023: *A great year!!!!*

Science

- Erica Baller: MS Depression @ *BiolPsych*
- Joelle Bagautdinova: white matter covariance networks @ *Cell Reports*
- Adam Pines: hierarchical propagations in development @ *Neuron*
- Arielle Keller: PFNs in cognition @ *Nature Communications*
- Bart Larsen: iron status in development @ *American J of Clinical Nutrition*
- Kahini Mehta: Delay discounting + functional connectivity @*Dev Cog Neurosci*
- Val Sydnor: hierarchical developmental plasticity @ *Nature Neuroscience*
- Chenying Zhao: ModelArray @ *Neuroimage*

Reviews

- Arielle Keller & Val Sydnor: network development, S-A axis, & cognition @ *Trends in Cognitive Science*
- Bart Larsen: plasticity in development @ *Trends in Neuroscience*
- Sophia Linguiti + Jake Vogel: psychedelics review @ *Neurosci & Biobehav Reviews*

Publications 2024: *A Success Already!*

Accepted / In Press

- Matt Cieslak: SHORELine @ *Human Brain Mapping*
- Hamsi Radhakrishnan: CS-DSI validation @ *Human Brain Mapping*
- Chenying Zhao: BABS @ *Imaging Neuroscience*

Under Revision

- Audrey Luo: FC development across the S-A axis @*Nature Communications*
- Jake Vogel: Transcriptomic cartography @*PNAS*
- Linden Parkes: Python toolbox for network control theory @*Nature Protocols*
- Golia Shafiei: generalizable fMRI predictors of BPD @*Biological Psychiatry*

Under review

- Arielle Keller: PFNs & the exposome in ABCD @ *DCN*
- Kahini Mehta + Taylor Salo: *XCP-D @ Imaging Neuroscience*

In Prep

- Joelle Bagautidnova: tract-maps
- Martin Gell: P-factor / reliability
- Golia Shafiei: RBC data release
- Kevin Sun: P-factor + PFNs
- Jake Vogel: AD PRS in Development

2023: Some Financial Challenges

PennLINC

- EFR01: no-cost extension (NCE)
- RBC R01 (w/ Mike Milham): year 4 of 5
- ImCo R01 (w/ Taki Shionhara): year 6 of 10
- Personalized networks R01 (w/ Damien Fair): year 2 of 10
- Deep learning of personalized networks (w/ Yong Fan): year 2 of 4
- Data science for affective instability: in cycle 2 of 3, renewal delayed
- ACTTION meta-analyses: cycle 5 of 5, ? next

Collaborative Grants

- NiPreps (Poldrack)
- Closed loop TMS (Fan/Oathes)
- Harmonization (Shinohara)
- BIDS connectivity (Pestilli)
- HBCD (Huang/DeMauro)
- Infant ASL (Huang)

→ ***Required some painful changes of staffing***

2023 PennLINC Team Grants: Results

- Baller K23 → *funded*
- Baller NARSAD → *funded*
- Baller LRP renewal → *funded*
- Bagautdinova F31 → *great score on A0*
- Keller Neuropsychiatry T32 → *funded*
- Keller LRP → *funded*
- Luo 30 → *near miss, bad review*
- Shanmugan K08 → *near miss, doesn't matter*
- Shanmugan DP5 → *funded*
- Shanmugan CAMS → *funded*
- Shanmugan NARSAD → *funded*
- Shanmugan LRP → *funded*
- Shafiei Optical Flow CIHR → *funded*

- ACTTION new contract → *funded*
- BPD cycle 3/3 → *funded*
- EF R01 / new plasticity R01 → *funded*
- HHMI → not invited to second round

2023/2024 PennLINC Team Grants: TBD + Planned

Pending

- Mehta NSF
- Meisler Neuropsychiatry T32
- Meisler MindCORE
- Pritschett K00
- Sun F30
- Lifespan CBF R01

Planned

- Bagautdinova F31A1
- Lifespan CBF R01A1 (likely)
- NiPreps R01 renewal (w/RP)
- Turing SBIR (w/ DF)
- RBC renewal (?)

2024: A better outlook (yay!)

PennLINC

- Plasticity R01: year 1 of 5
- RBC R01 (w/ Mike Milham): year 5 of 5
- ImCo R01 (w/ Taki Shinohara): year 7 of 10
- Personalized networks R01 (w/ Damien Fair): year 3 of 10
- Deep learning of personalized networks (w/ Yong Fan): year 3 of 4
- ACTTION meta-analyses: year 1 of 6

Collaborative Grants

- Alexander-Bloch:
  - Schizophrenia Growth charts R01
  - Genetics of PFNs R01
  - Clinical radiomics R01
- Davatzikos: NiCharts U01
- Poldrack: NiPreps BRAIN R01
- Shinohara: Harmonization R01
- CHOP/UMinn U01 + Contract

2019

- Move to Richards
- Transition to Flywheel
- Computing systems: CUBIC/CFN
- Uncertainty regarding lab location (i.e., moving to Duke)

2020

- PennLINC launched
- Flywheel pain points
- Computing systems: CUBIC/PMACS
- Team expansion
- COVID-19

2021

- Increasing productivity
- Steep part of of the DataLad curve
- Computing systems: CUBIC or bust
- COVID 19 . . . ***still*** **(!?!)**

2022-2023

- “The golden age”
- Exceptional productivity
- Investments pay off
- Adapting to hybrid life after COVID

2020: Goals & Tasks

- *Reproducible*
  - Preprocessing: containers / workflows/ data freezes
  - Analysis: notebooks/markdown (no more ppt!)
- *Accessible*:
  - Reduce barriers to best practices
  - Documentation
- *Scalable:*
  - Standardized workflows applied to many large datasets
  - Identical implementation across projects so can combine across data resources
  - Discover + replicate so we can really believe it!

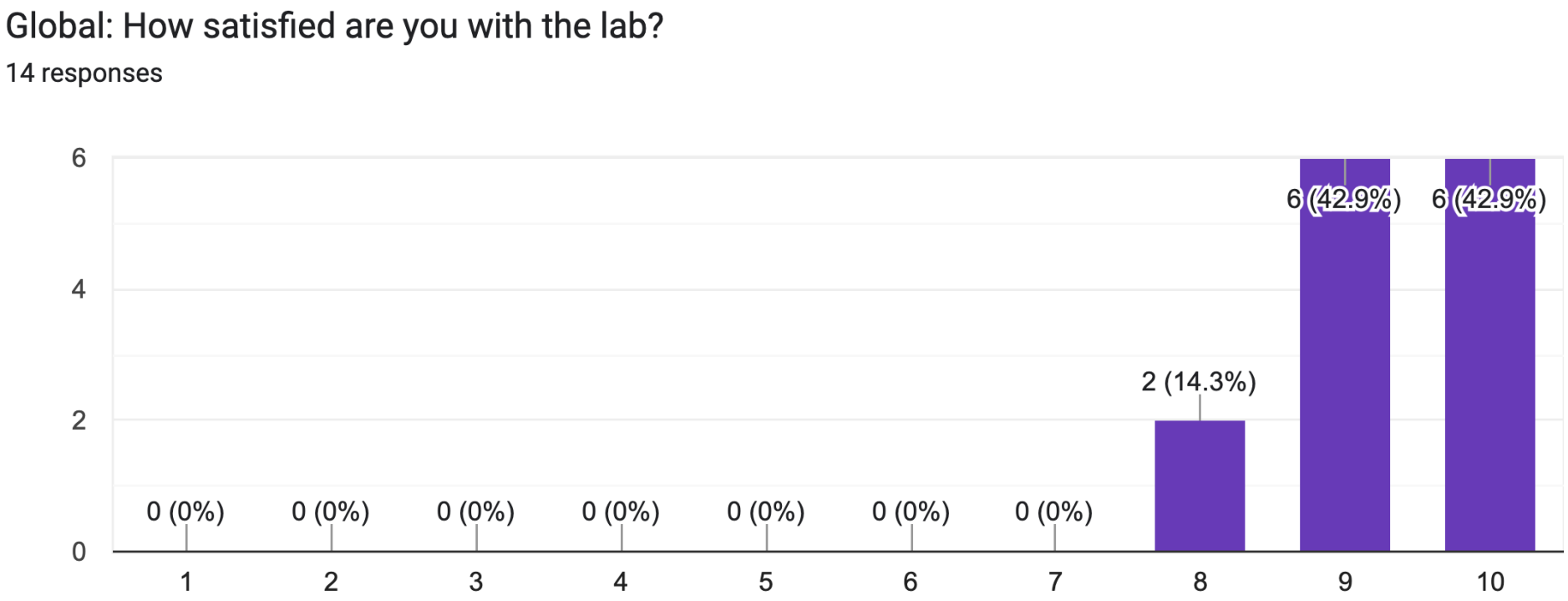
2020 Goals & Tasks as of 2024

- *Reproducible*
  - Preprocessing: containers / workflows/ data freezes
  - Analysis: notebooks/markdown (no more ppt!)
- *Accessible*:
  - Reduce barriers to best practices
  - Documentation
- *Scalable:*
  - Standardized workflows applied to many large datasets
  - Identical implementation across projects so can combine across data resources
  - Discover + replicate so we can really believe it!

2020 Goals & Tasks – *but there is always more to do*

- *Reproducible*
  - Preprocessing: containers / workflows/ data freezes (not fully complete)
  - Analysis: notebooks/markdown (no more ppt!) / (Project setup/workflows not standardized across lab)
- *Accessible*:
  - Reduce barriers to best practices
  - **Documentation** (has become out of date!!!)
- *Scalable:*
  - Standardized workflows applied to more large datasets (there are always more)
  - Identical implementation across projects so can combine across data resources (keep in sync!)
  - Discover + replicate (pre-register more!)

Feedback from Lab Environment Survey 2023



Miserable

Bliss

Mean: 9.3 vs. 8.8 in 2022

Feedback from Lab Environment Survey 2023

- Scheduled/tracked career development meetings now active
- Weekly lunches return!
- Updated policies: noise, space, travel, communication, guiding principles
  - Travel: $4k annual stipend
  - Communication: norms around slack boundaries
  - Principles: 5-ish guiding principles that we craft + vote on together
- Docs: docs hackathon planned!
- Daily victories channel launched (needs to be used more)
- Ongoing social events: bakefest, chilifest, lab graudation, HHs
- Birthday captain: Audrey Luo (thru 7/1/2024)
- Lab meetings:
  - Trainees ask first question (spotty compliance by faculty)
  - Need to further develop principles to maximize participation across all levels
  - Launch of 1x/mo joint lab meetings across labs

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
  - High turnover due to success
  - Two new coordinators
  - Three new post-docs (one remote)
  - No more data analysts
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
  - Informatics becomes “self service”
  - Running pipelines, getting data, etc
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
  - Acute challenge for self-service model
  - Will require a major team effort
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
  - More replicable science
  - Ask different questions (?)
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
  - RBC: Go from consumers to **distributors**
- New opportunities
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
  - Clinical imaging collab w/ AAB
  - Mobile phenomics reboot (again) – data collection remains hard
  - Basic science collabs
- Retaining cohesion
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
  - Ongoing remote work
  - New labs in PodA
- Keeping science + lab fun

Goals and Anticipated Challenges in 2024

- A different team
- A different workflow
- Documentation
- Capitalize on scale
- Data distribution
- New opportunities
- Retaining cohesion
- Keeping science + lab fun