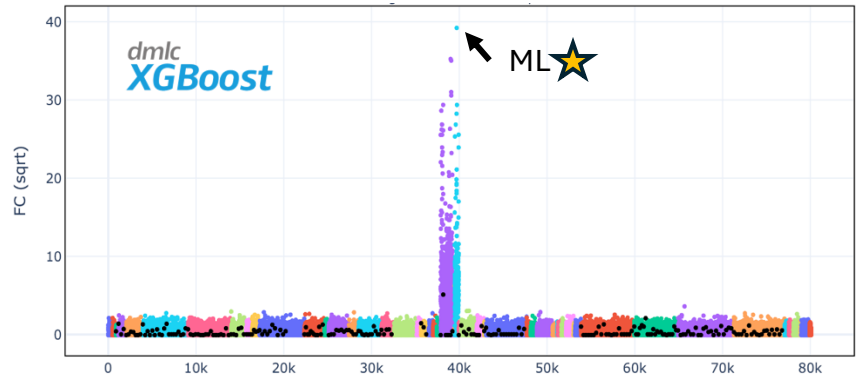
Work History

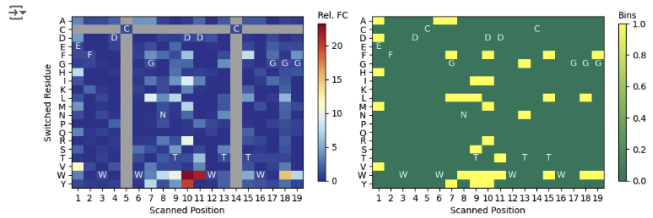
Shaurya Seth

MLE @ 48Hour Discovery

2023-Present

- Using AI to discover drug compounds that perform better than expert-designs
- Led a team of four taking the company from no ML capacity to weekly experimental validation
- Full stack development of in-house tools for analyzing experimental results used routinely by lab staff
- Automated experimental design pipelines combining algorithms + human judgement
- Stack: Python, AWS (S3, EC2), XGBoost, PyTorch






```
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Peptides: 30,614,298,624
Sequences: 835,884,417,024
Oligo: VHSTTCTGGGACTGCKSGKNBHDSWNBDDBDVSTGGRVCTGCWBSTGGGGAKKGKKS
```
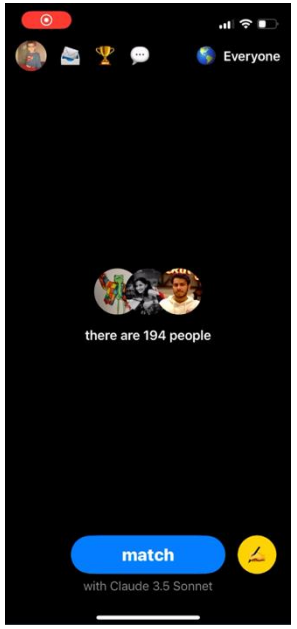
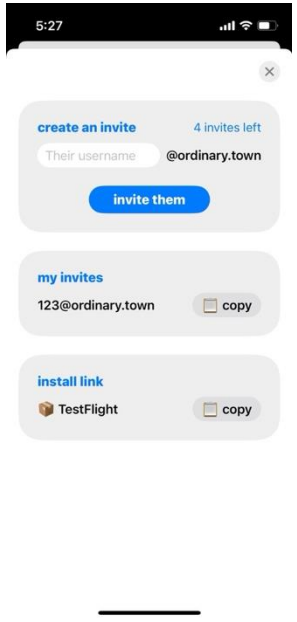

	1	2	3	4	5	6	7	8
Parent	E	F	W	D	C	W	G	N
Desired	ADEHMV	F	W	D	C	AW	AFGLY	LNW
Encoded	ADEHIKLMNPQTV	F	W	D	C	AGSW	*ACDEFGLSVWY	*CFHIKLMNQRSWY	*C
AA	13	1	1	1	1	4	12	14
Codon	18	1	1	1	1	4	24	18
IUB	VHS	TTC	TGG	GAC	TGC	KSG	KNB	HDS

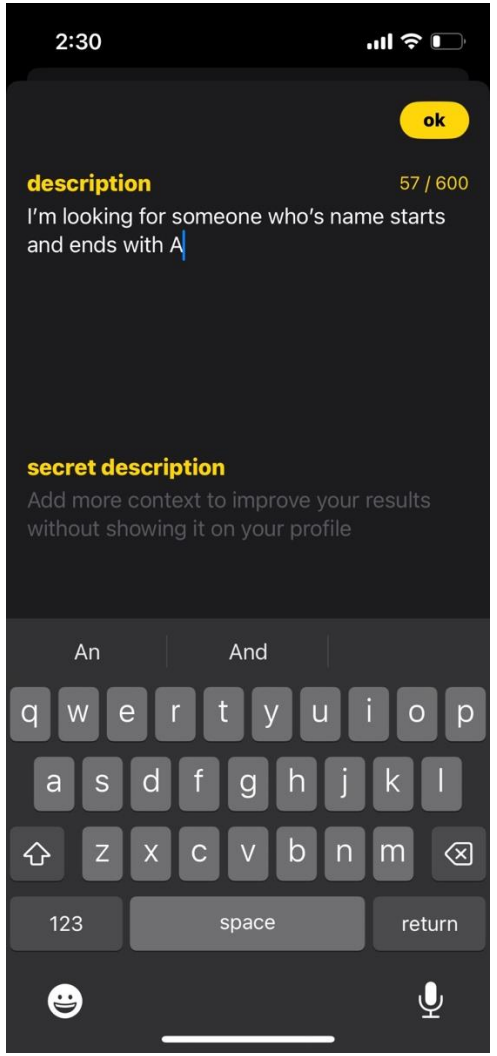
Ordinary App (Link)

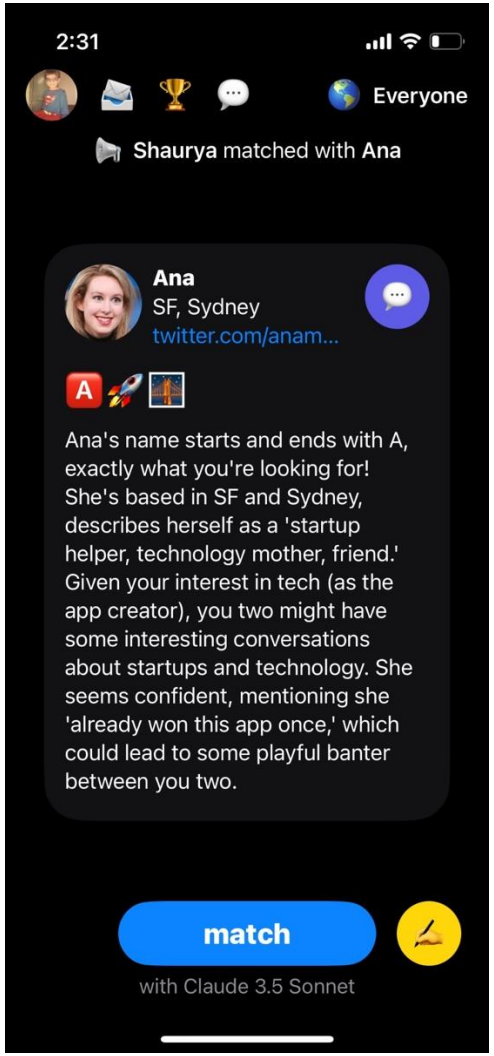
2024

- A social app that connects people using a language model
- Each user writes a description (who they are + what they are looking for)
- An LLM goes through every user and picks one it believes you should reach out to (and tells you why)
- Reached 200+ users on TestFlight
- Fully functional messenger, invite system, authentication, push notifications and location filters
- Stack: Swift, Firebase (Cloud Functions, Firestore, Auth), Claude





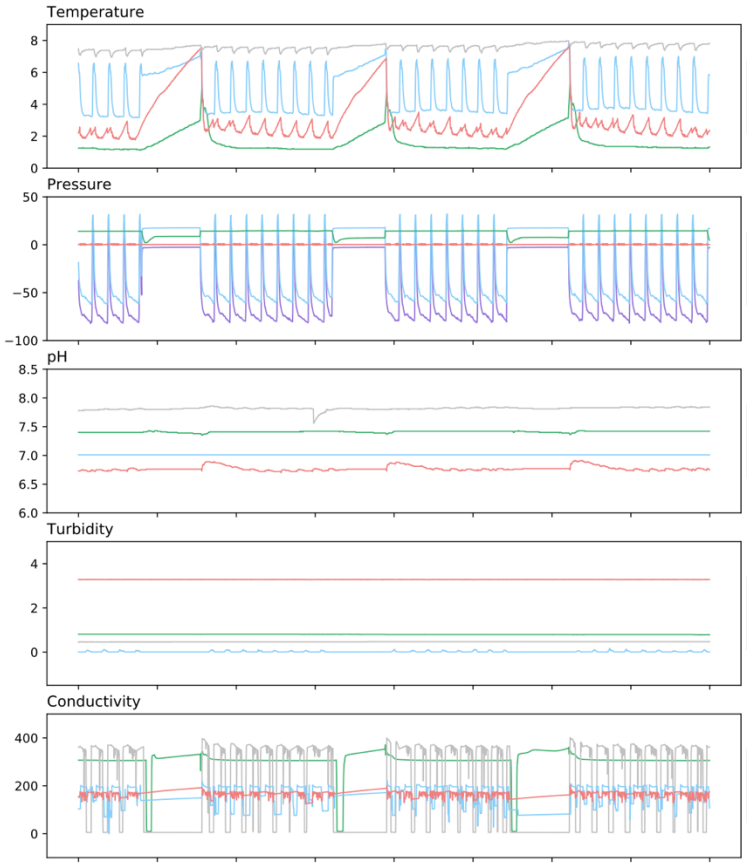


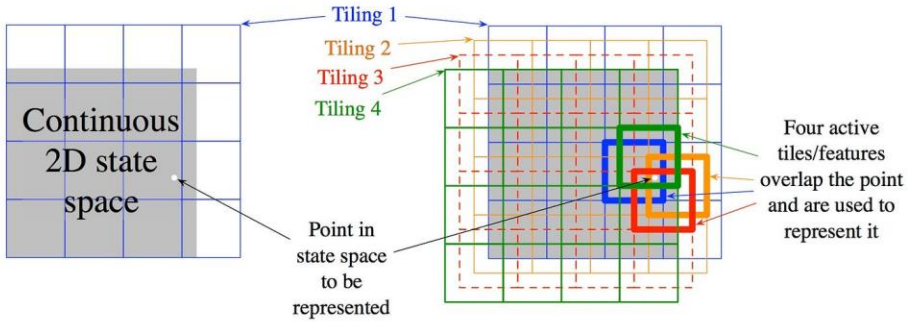


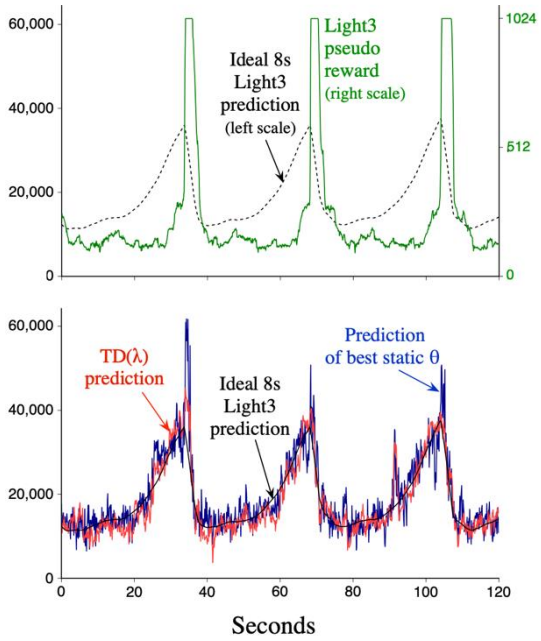
RA @ RLAI

2021

- Used reinforcement learning to automate an industrial water-treatment plant
- Created the first visualizer for the pilot plant sensors and control systems
- Used linear function approximation with tile coding to predict sensor readings
- Benchmarked advanced deep RL algorithms
- Demonstrated that classical control algorithms can outperform deep RL with higher sample efficiency
- Stack: Python, Q-Learning, SARSA, DQN



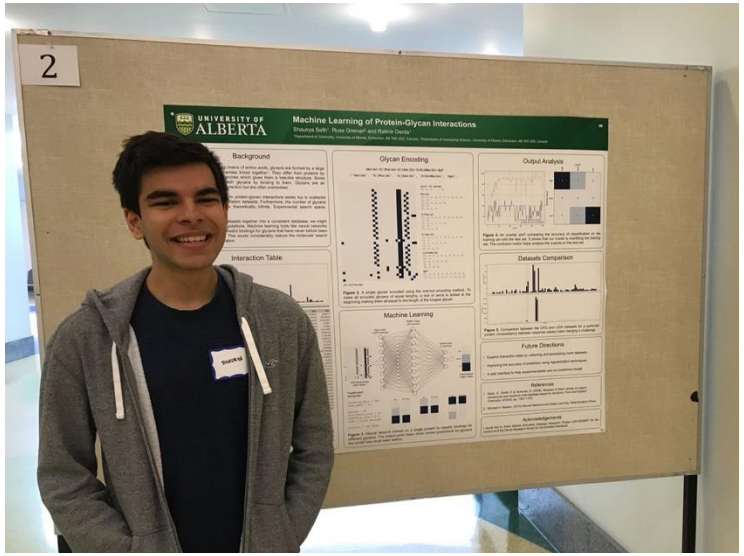


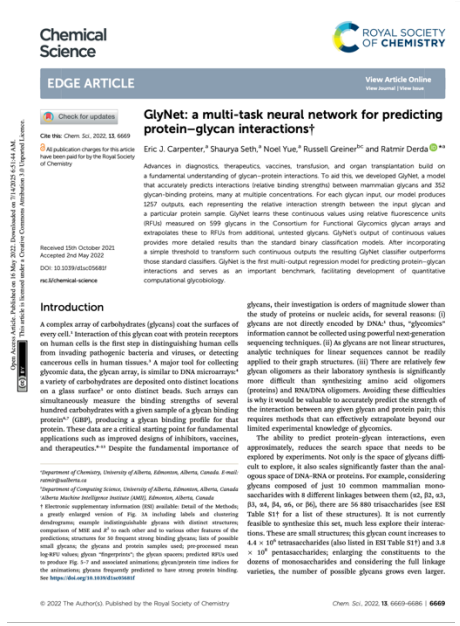


RA @ Derda Lab

2019-2021

- Creation of a unique vector encoding of complex carbohydrates that outperforms atomic-level representation to date
- Automation of agar-plate phage counting using computer vision (I painstakingly labeled hundreds of images, trained a ConvNet and deployed a model that could directly give phage count from the image of the plate)
- Stack: Python, OpenCV




Chemical Science

ROYAL SOCIETY OF CHEMISTRY

EDGE ARTICLE

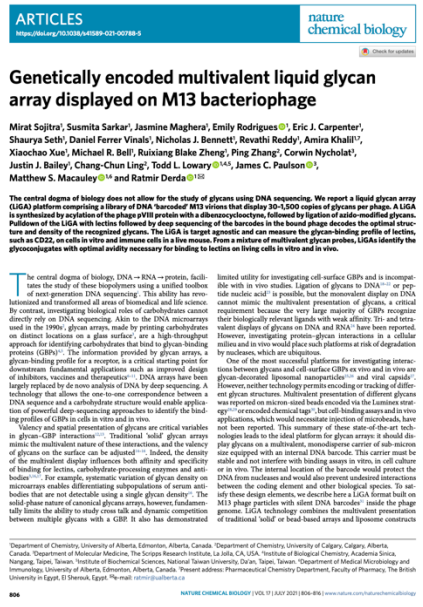
View Article Online

Check for updates

GlyNet: a multi-task neural network for predicting protein–glycan interactions†

Eric J. Carpenter,[a] Shaurya Seth,[a] Noel Yue,[a] Russell Greiner[b,c] and Ratmir Derda[a,*]

Introduction


ARTICLES

nature chemical biology

Genetically encoded multivalent liquid glycan array displayed on M13 bacteriophage

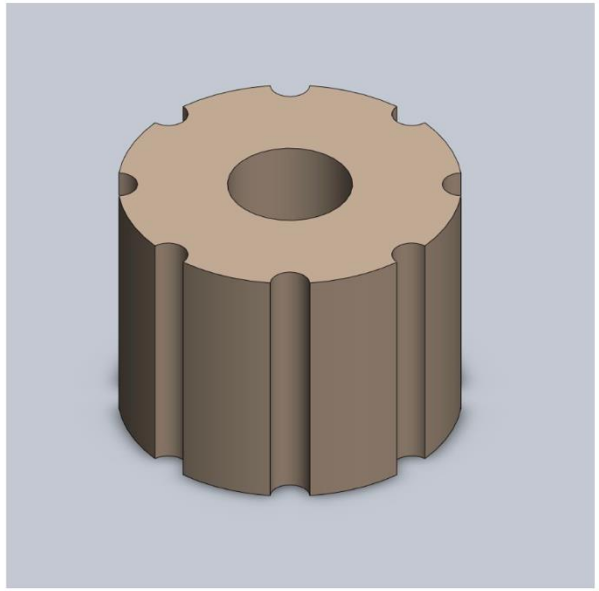
Mirat Sojitra[1], Susmita Sarkar[1], Jasmine Maghera[1], Emily Rodrigues[1], Eric J. Carpenter[1], Shaurya Seth[1], Daniel Ferrer Vinals[1], Nicholas J. Bennett[1], Revathi Reddy[1], Amira Khalil[1,2], Xiaochao Xue[1], Michael R. Bell[1], Ruixiang Blake Zheng[1], Ping Zhang[2], Corwin Nycholat[3], Justin J. Bailey[1], Chang-Chun Ling[2], Todd L. Lowary[1,4,5], James C. Paulson[3], Matthew S. Macauley[1,4] and Ratmir Derda[1,5]*

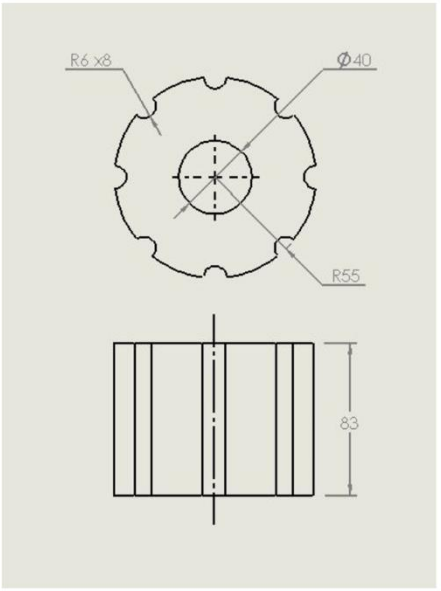
RA @ Nobes Group

FACULTY OF ENGINEERING
UNIVERSITY OF ALBERTA

2022

- Recreation of NASA's kilowatt nuclear fuel core in SolidWorks
- Demonstration of ability to go from no knowledge in a domain to success in the span of weeks
- Stack: SolidWorks, FEA, OpenMC





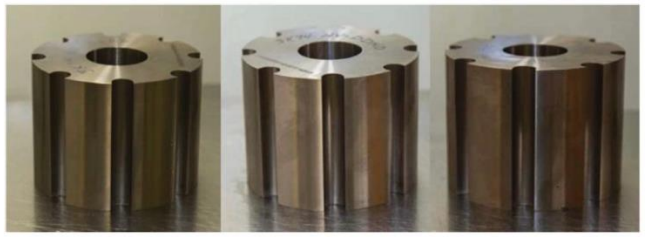


Fig. 5. KRUSTY HEU core sections.

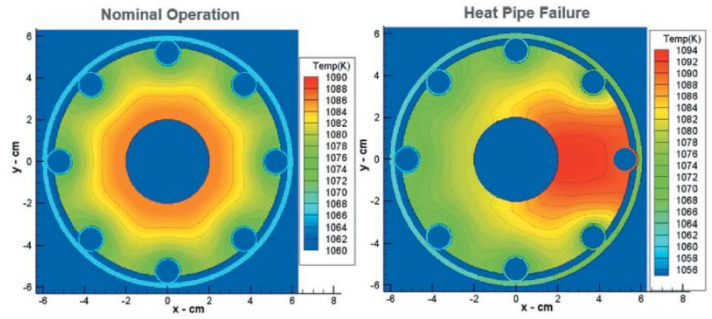
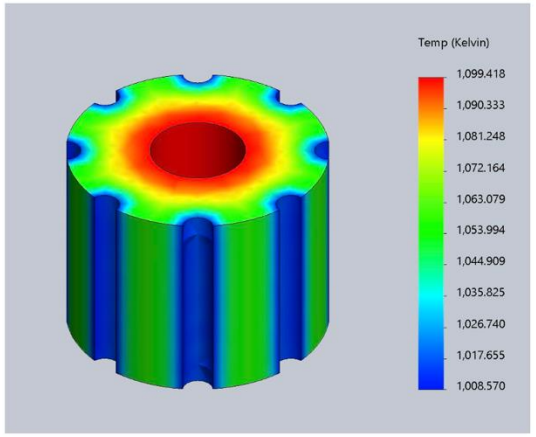
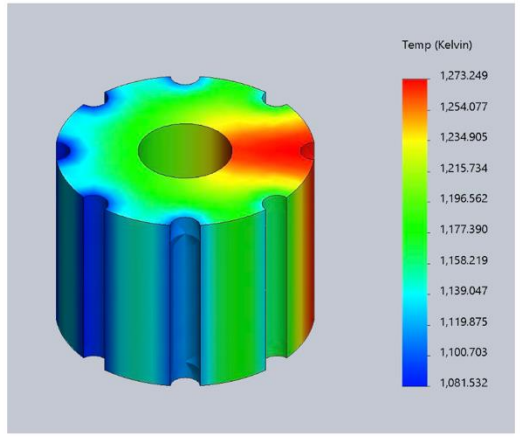


Fig. 13. KRUSTY core temperature calculations at axial center.





pyramidify (Link)

2022

- Plot camera poses in 3D for creating neural radiance field (NeRFs)
- End-to-end pipeline that takes raw images (without camera coordinates) and creates a continuous radiance field
- Demonstration of working understanding of 3D geometry
- First exposure to modest fame on GitHub (17 stars)
- Stack: COLMAP, NVIDIA NGP

pyramidify Public

Plot camera poses in 3D for creating NeRFs.

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