



PeakLearner

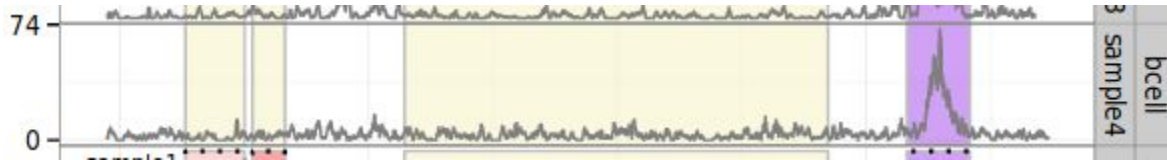
Team GNomes Members: Jacob Christiansen, Allen Clarke, Yuanyuan Fu, John Jackson

Mentor: Mahsa Keshavarz

Sponsor: Dr Toby Hocking

What is PeakLearner?

- Understanding The Genome
- Help Prevent genetic diseases

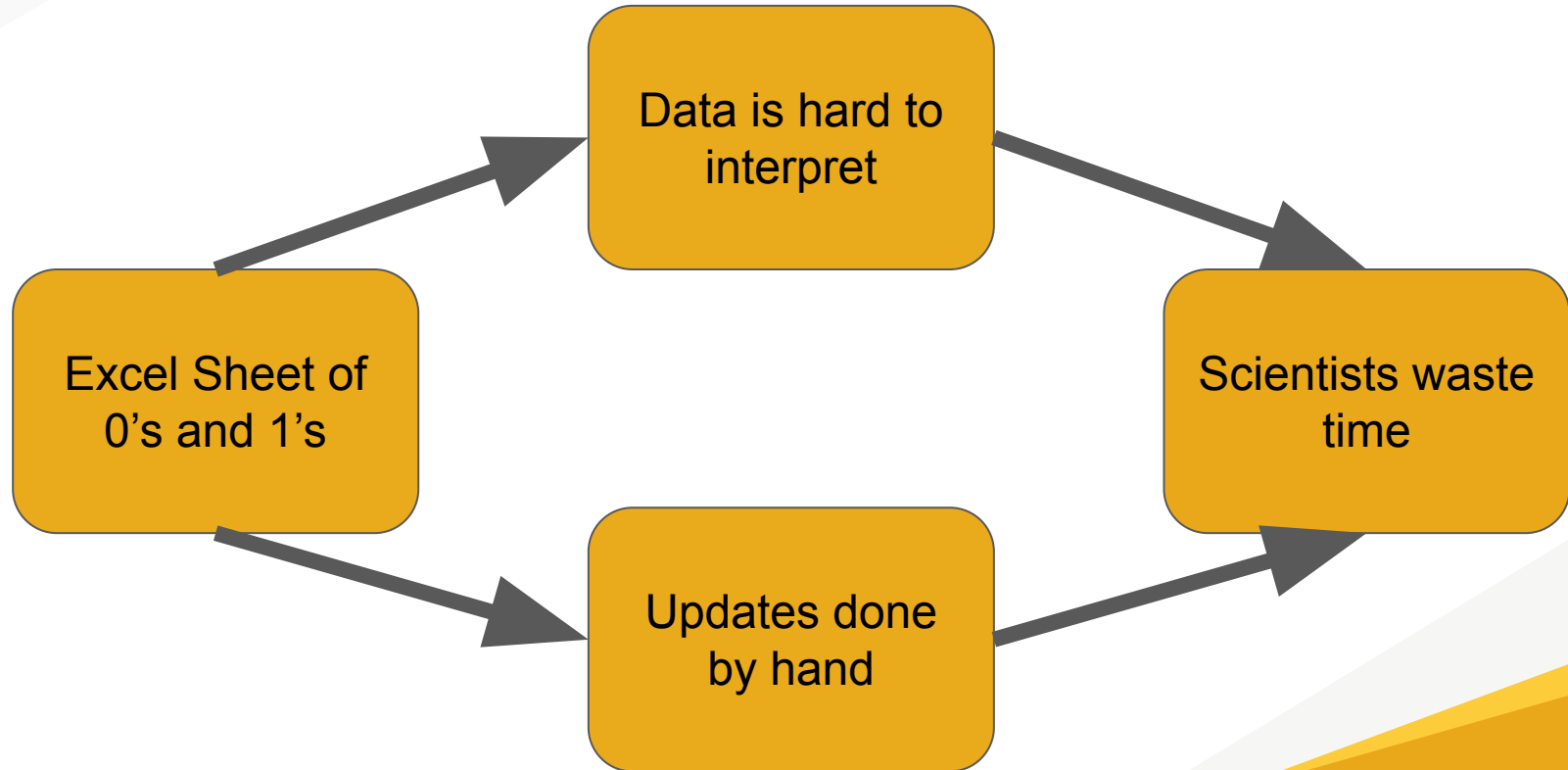


Our Client: Dr Toby Hocking

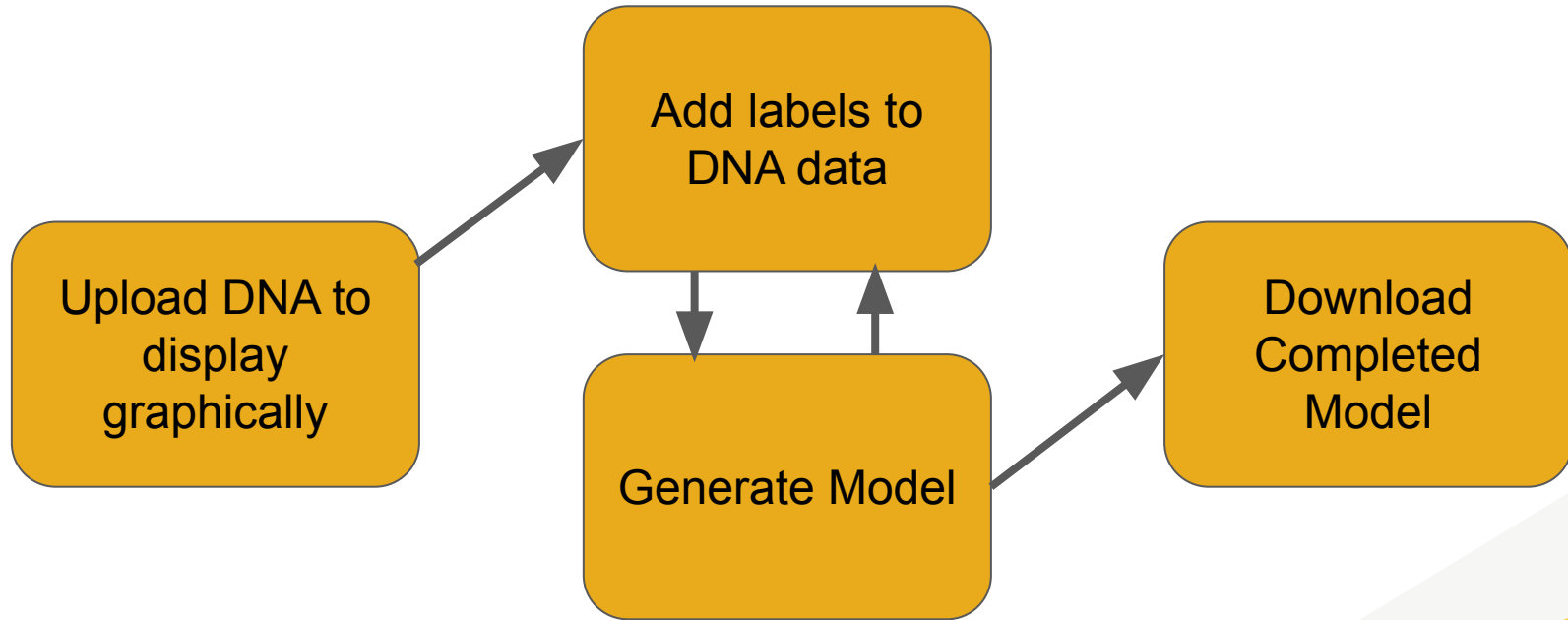
- Researcher at NAU
- AI and medical predictions



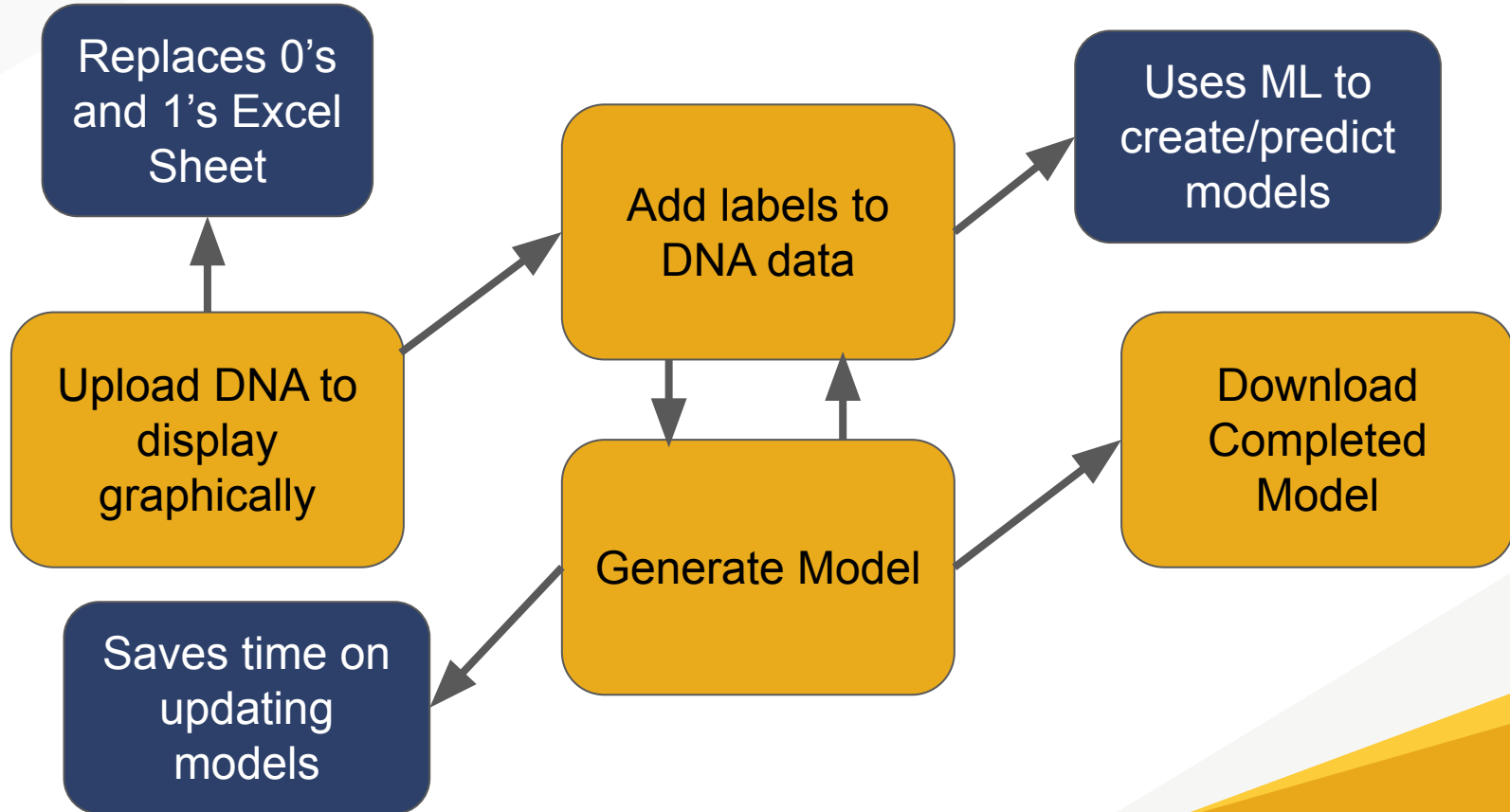
Specific Problem



Solution Overview



Solution



Requirements Acquisition

- Weekly Meeting with Dr. Hocking
- Chrome Developer Tools
- Documentation of JBrowse

User Requirements

- Don't lose any info
- Easy to share with others
- Responsive
- Easy to learn
- Don't need account or to pay

Functional Requirements

- Interactive web interface
- Ability to add/ modify labels
- Dynamic model generation
- Upload/download capability

Non-Functional Requirements

- Speed
 - Less than 0.2 seconds between new label input and showing the most accurate model 90% of the time at 8mb/s
- Simplicity
 - Minimal number of clicks to add a label
 - No clicks to see new model

Environmental Requirements

- SLURM - Job scheduling language used by GPU Cluster Monsoon
- R - Language chosen by Dr. Hocking for his completed Machine Learning Algorithm
- Google authentication for login

► Risks & Feasibility

Technical Risks

<i>Technical Risk</i>	<i>Effects</i>	<i>Likelihood</i>
JBrowse modification issues	Serious	Low
Desired speed unachievable	Tolerable	Low
Cluster down for maintenance	Tolerable	Moderate

► Risks & Feasibility

Social Risk

<i>Technical Risk</i>	<i>Effects</i>	<i>Likelihood</i>
Team members are ill or unavailable at crucial times	Serious	Low

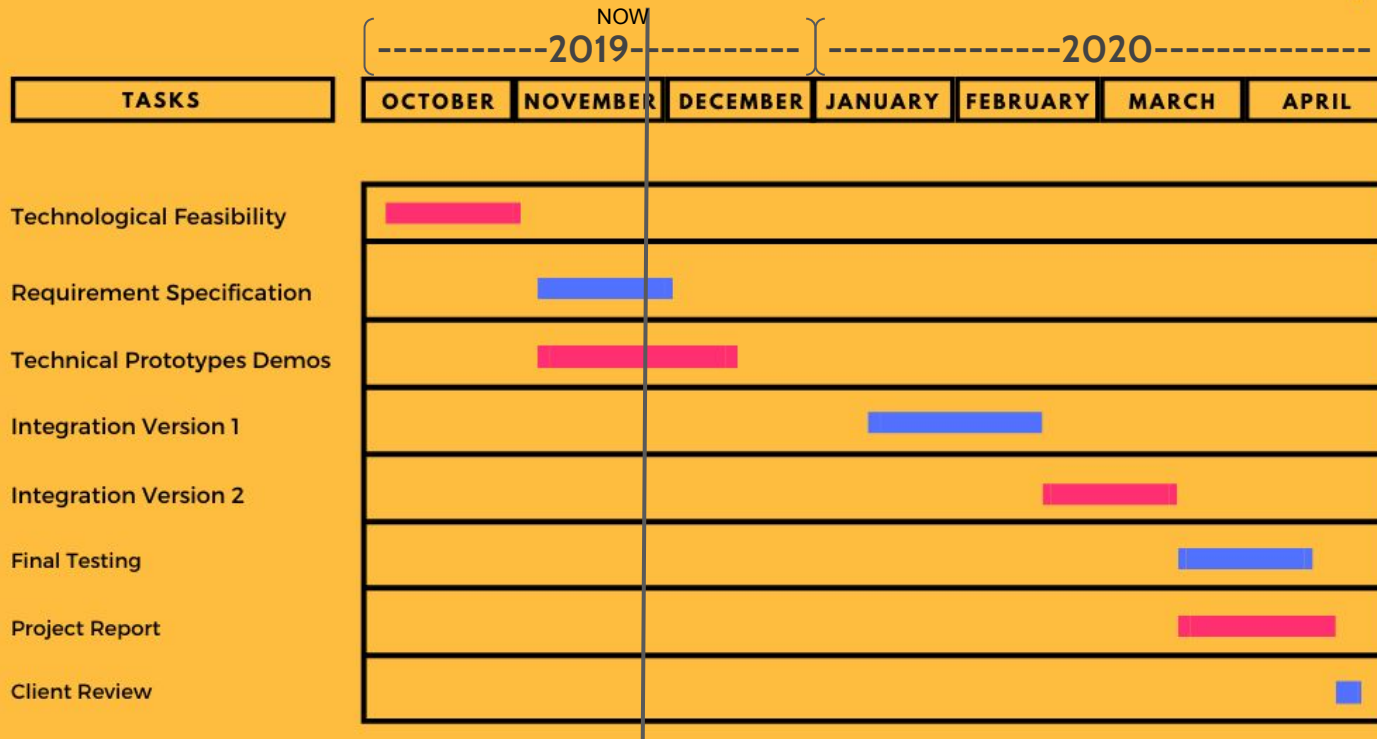
► Risks & Feasibility

Market Risk

<i>Technical Risk</i>	<i>Effects</i>	<i>Likelihood</i>
PeakLearner is usurped by a competitor	Insignificant	Low

MOVING SCHEDULE

TARGET DATE: APRIL 24 , 2020



Conclusion

- Problem -> Biologists need help but cannot get it
- Solution -> Create a webapp to gather data for ML researchers and give models to biologists
- Requirements -> The fast, interactive and clear website for biologists to work on
- Risks & Feasibility -> Technical, social, market risks



▶ Thank You!