

JUNI HEALTH

2024 Blavatnik Fund



Sophie Chheang, MD/MBA
(sophie@junihealth.com)

- Assistant Professor, Yale School of Medicine
- Associate Director of Informatics, Department of Radiology & Biomedical Imaging



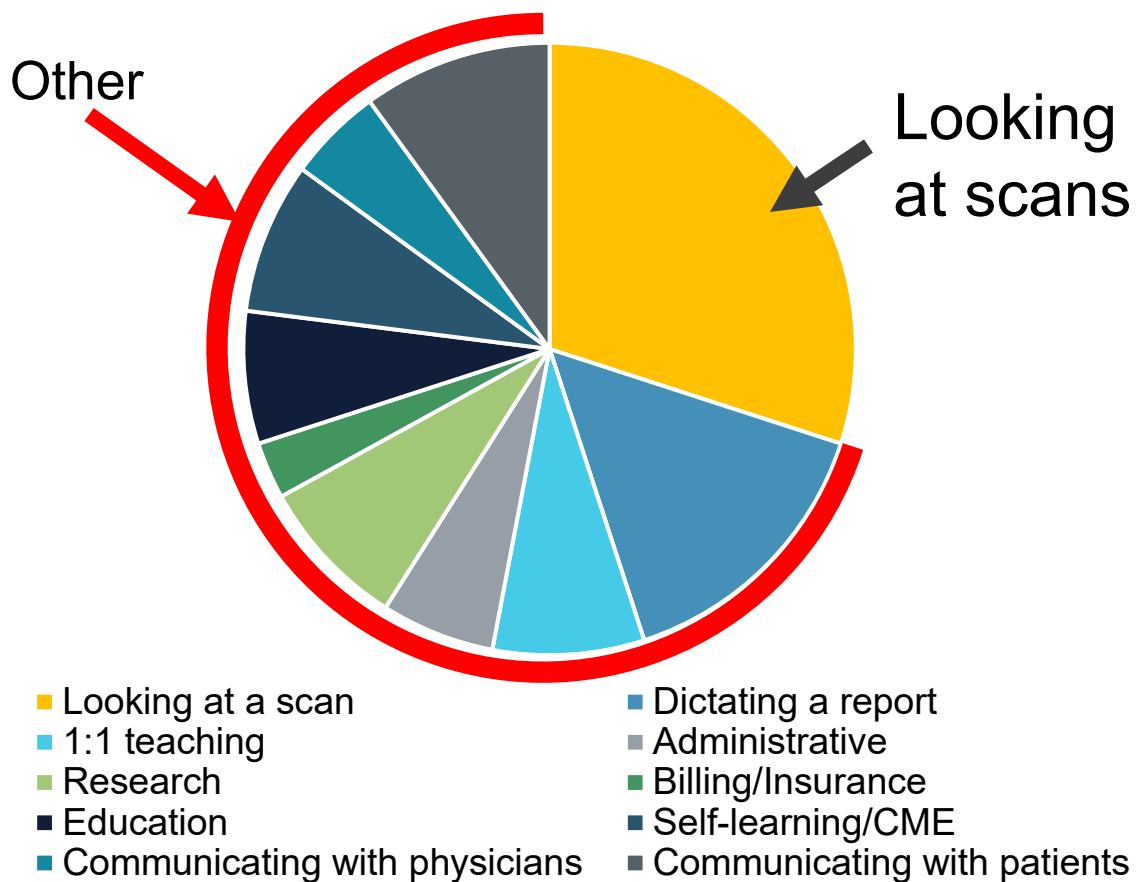
Arman Cohan, PhD
(arman@junihealth.com)

- Assistant Professor, Department of Computer Science
- Yale University
- NLP/AI Research

Yale Pitchfest
December 5, 2024

Radiologists spend more time on tasks outside analyzing scans

Responsibilities of a Radiologist



Existing companies **mostly focused on image analysis**, less on administrative tasks



Radiologists spend more time on administrative tasks, **leading to burnout**



Radiologists want to find ways to focus on their expertise make work **more enjoyable** –

This is **Juni Health's mission**

Juni Health is developing a platform technology to support radiologists

Radiology-focused AI Models



Stand-alone application



Juni Health Platform

Powered by an In-house developed Foundation Model trained on high-quality data

User Experience: Seamless Integration with legacy software. No changes to the standard workflows.

Several products in the pipeline. Potential expansion to other clinical specialties.

Key Product Innovations



Models developed at Yale NLP Lab



High Reliability & Reduced Hallucinations



Designed to provide benefits seen with LLMs but specificity to radiology

Juni Health has three active product lines in development



**Computed Radiology
Automated Impression
Generator (Craig)**



**Comprehensive Residency
Management System**



Automated IR Billing

CRAIG generates impressions, saving 30-60 minutes per shift

**Anticipated Time
Savings of 30-60
minutes / shift**



CRAIG generates impressions, saving 30-60 minutes per shift

The screenshot shows the Nuance PowerScribe One interface. The main text area contains the following report content:

CLINICAL INFORMATION: [History]

COMPARISON: [None]

FINDINGS:
 There is bilateral peritonsillar soft tissue swelling and enhancement. Bilateral phlegmonous changes are noted, with a right peritonsillar abscess measuring up to 1.2 cm (series 4 image 185). Phlegmonous change on the right extends into the parapharyngeal space, along the posterior oropharynx, and to the level of the right submandibular space. The parotid, submandibular and thyroid glands are unremarkable. There are prominent reactive lymph nodes of the upper neck.

The globes are intact. There is patchy opacification of the paranasal sinuses. The mastoids are clear.

The great vessels of the neck are unremarkable.

The cervical spine is unremarkable.

The visualized portion of the brain is unremarkable.

The imaged lung apices are clear.

IMPRESSION:
 Bilateral peritonsillar soft tissue swelling and enhancement, consistent with tonsillar inflammation and infection.
 There is a 1.2 cm right peritonsillar abscess.
 Phlegmonous changes extend into the right parapharyngeal space, posterior oropharynx, and to the level of the right submandibular space.

← Body of the report

← Impression

Anticipated Time Savings of 30-60 minutes / shift

Potential to add immense value to radiologist departments

2.7 additional CTs read with CRAIG per radiologist

Total time to read CT (mins)	20
Minutes saved per CT	2
Total Minutes in a shift	480
# CTs interpreted in one shift without CRAIG	24
# CTs interpreted in one shift with CRAIG	27
Additional CTs read with CRAIG	2.7



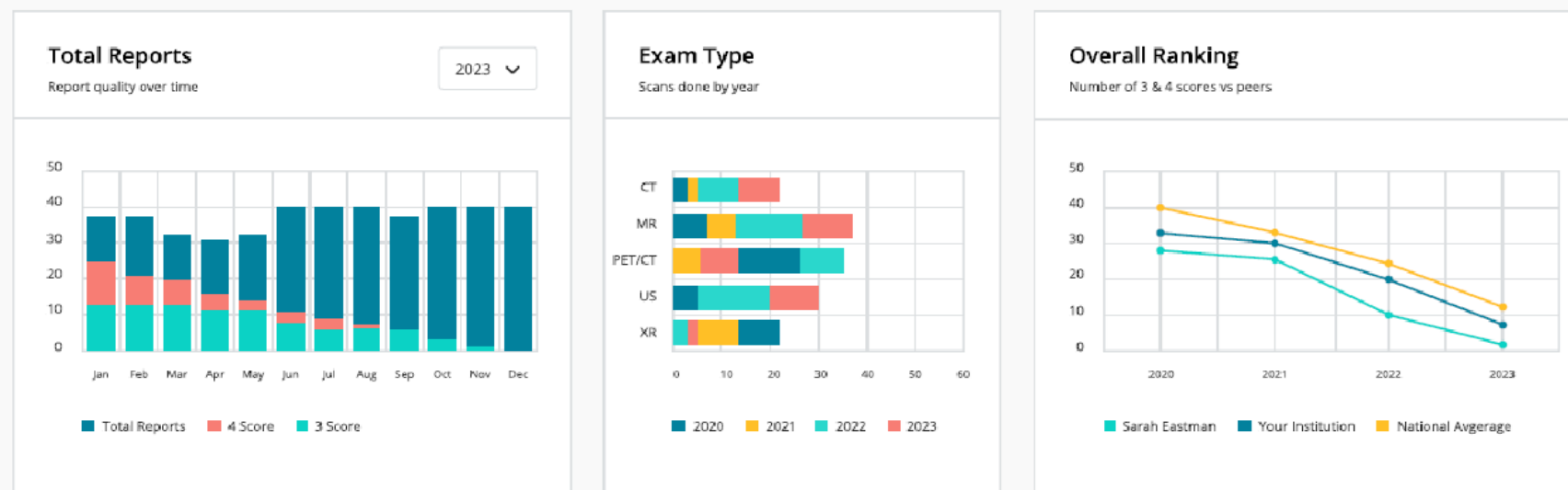
\$3.6M annual revenue increase per radiologist department through CRAIG

CT scan professional fee	\$75
Additional professional revenue with CRAIG	\$200
Number of radiologists in department	75
Additional professional revenue with CRAIG per department per day	\$15,000
Additional professional revenue with CRAIG	\$3.6 M

Education: The Residency Management

Help residency directors track individual performance and improve education of residents

Performance Report



Collective Dashboard for residency directors.

Resident	Attending Physician	Exam Type	Date of Dictation	Patient Location	Status	Score
Sarah Eastman	Dr. John David	CT	09/15/23	Inpatient	Preliminary	4
	Dr. Clara Johnson	CT	10/15/23	Inpatient	Final	3
	Dr. George Stevens	US	11/15/23	Inpatient	Final	3
	Dr. Rachel Williams	PET/CT	12/15/23	Outpatient	Final	3

Billing: Extract procedures included in the report to enable accurate billing for interventional radiologists

The screenshot displays a medical reporting interface with a procedure report on the right and a CPT code list on the left. The report includes sections for PHYSICIANS, MEDICATIONS, CONTRAST ADMINISTERED, FLUOROSCOPY TIME, and TECHNIQUE AND FINDINGS. The CPT code list is divided into 'Current' and 'Suggested' sections. Two callout boxes with red arrows point to these sections: one labeled '[optional] Existing codes' pointing to the 'Current' section, and another labeled 'Suggested revisions/additions' pointing to the 'Suggested' section. A green box on the right contains the text 'Accurate coding leads to higher revenue for interventional radiology departments'. At the bottom, an 'Auto Text' window shows a list of procedures and their corresponding report text.

[optional] Existing codes

Suggested revisions/additions

Accurate coding leads to higher revenue for interventional radiology departments

Current

76506
Diagnostic ultrasound procedures

77271
Bone/om studies

77261
Irradiation oncology treatment

Suggested

90000
Anesthesia during Kyphoplasty

90000
Anesthesia during Kyphoplasty

Report - LATIMER, KIM D - E125446159

PHYSICIANS: Dr. Cheang, the attending physician, was present for the procedure and its imaging. []

MEDICATIONS: Moderate sedation was achieved with []mcg fentanyl IV and []mg Versed IV. Procedure time was [30] minutes, monitored all time

CONTRAST ADMINISTERED: []cc Omnipaque-300.

FLUOROSCOPY TIME: []minutes.

TECHNIQUE AND FINDINGS:
Informed written consent was obtained. The patient was then brought to the procedure suite, placed in the supine position, and a timeout was performed. The patient's right groin was sterilely prepped and draped. After giving local anesthesia, the patent right common femoral artery was punctured with a 21 gauge needle and a 0.018 inch wire advanced through this into the artery under fluoroscopic guidance. The needle was then exchanged for a transitional 3/5 French dilator. The inner 3 French dilator and microwire were removed, and a Bentson wire was advanced through the 5 French dilator into the abdominal aorta under fluoroscopic guidance. The 5 French dilator was then exchanged over the wire for a 6 French SideArm sheath, which was connected to a pressurized saline. Brief right common iliac angiography was performed demonstrating a right common femoral arterial puncture site appropriate for later closure device.

A 5 French Omni Flush catheter was next advanced through the sheath over the wire into the superior abdominal aorta and an aortogram was performed. Digital angiography treated the origin of the celiac and superior mesenteric arteries, as well as a normal branching pattern of the hepatic arteries. No definite extravasation was identified on phy.

ni Flush catheter was then exchanged over the Bentson wire for a 5 French Sos Omni-2 catheter, which was formed in the abdominal aorta and the catheter was used to select c artery and digital subtraction angiography was performed. There was no evidence of active contrast extravasation, however the portal veins were not visualized. The left artery was then subselected with a Renegade STC microcatheter and a guidewire GT, and angiogram of the left gastric artery was performed. This demonstrated no evidence al abnormality. However, the decision was made to empirically embolize the left gastric artery given the patient's upper gastrointestinal bleeding. This was performed via the microcatheter with approximately 8 cc of Gelfoam in a slurry mi, followed by several coils including a 3-2mm Tomado microcoil, a 4-2mm Tomado microcoil, two 14cm x 6mm, two 14cm x 8mm and two 14cm x 4mm Nester microcoils. There was no significant flow through the distal left gastric after the embolization. The microcatheter was then removed, and followup celiac angiography demonstrated successful occlusion of the left gastric artery without evidence of of nontarget embolization or other arterial abnormality.

The Sos Omni catheter was then removed from the celiac artery and utilized to select the superior mesenteric artery. Digital subtraction angiography was then performed from this position, with no contrast extravasation or other abnormality noted. The portal vein seen to be widely patent. The decision was therefore made to conclude the procedure. The catheter was removed and hemostasis achieved at the right groin with a 6 French StarClose device and 2 minutes of manual compression. A sterile dressing was applied. The patient tolerated procedure well and was transferred back to the ICU in stable condition.

IMPRESSION:

1. Mesenteric angiogram with no definite evidence of contrast extravasation of the celiac and superior mesenteric arteries.
2. Empiric embolization of the left gastric artery performed with Gelfoam [and microcoils]
3. Patent portal venous system.

Auto Text

List: All Personal Name: Search Create Edit Delete

Name	Used
Declot AV Graft	
Embolization Left Gastric Bl...	4/29/2024 1...
epidural steroid injection	12/20/2023 ...
Gastrostomy Check	
Gastrostomy Exchange / R...	3/4/2024 12...
Gastrostomy Pull	3/25/2024.

PROCEDURE: Mesenteric angiogram with empiric left gastric artery embolization.

DATE OF PROCEDURE: []

INDICATION: [] year-old [] male with history of [] who presents for []

PHYSICIANS: Dr. Rajasekhara Ayyagari, the attending physician, was present for the procedure and its imaging. []

Accession: E125446159
Procedure: IM63022
Description: IR MISCELLANEOUS INCL US AND CT
Status: Scheduled
Ordering: JUSTINE RYU

Open Orders
[Show all orders](#)

Visit

Admitted: 4/18/2024 12:00 AM
Acct Num: 355574438
Referring: JUSTINE RYU

Through licensing fees to radiology practices & residency programs, Juni Health estimates an annual TAM of \$105M

Annual Juni Health TAM: \$105M



Direct licensing to radiologists



Licensing fees to US residency programs







Licensing fees to interventional radiology groups

Juni Health Business Model

I	Number of US Radiologists	35,000
	Licensing Fee of CRAIG Tool per Radiologist	\$2,000
	Total Addressable Market (CRAIG)	\$70,000,000
II	Number of US Residency Programs	200
	Licensing Fee of Resident Report Review per Program	\$50,000
	Total Addressable Market (Resident Report Review)	\$10,000,000
III	Number of IR Departments & Groups	200
	Licensing Fee of IR Billing Tool per Group	\$125,000
	Total Addressable Market (Real-Time IR Billing)	\$25,000,000

Juni Health is nimble, turnkey, adaptable, and easier to implement in radiologist workflows than competitors

	 Juni Health	 Rad AI	 Microsoft + NUANCE	 Google Med-PaLM
Medical-domain LLM	✓	✓	✓	✓
Works with existing software	✓	✓	✓	
Radiology Expertise	✓	✓	✓	
Impression Generation	✓	✓	✓	
Education	✓			
Billing	✓			
Platform technology	✓			



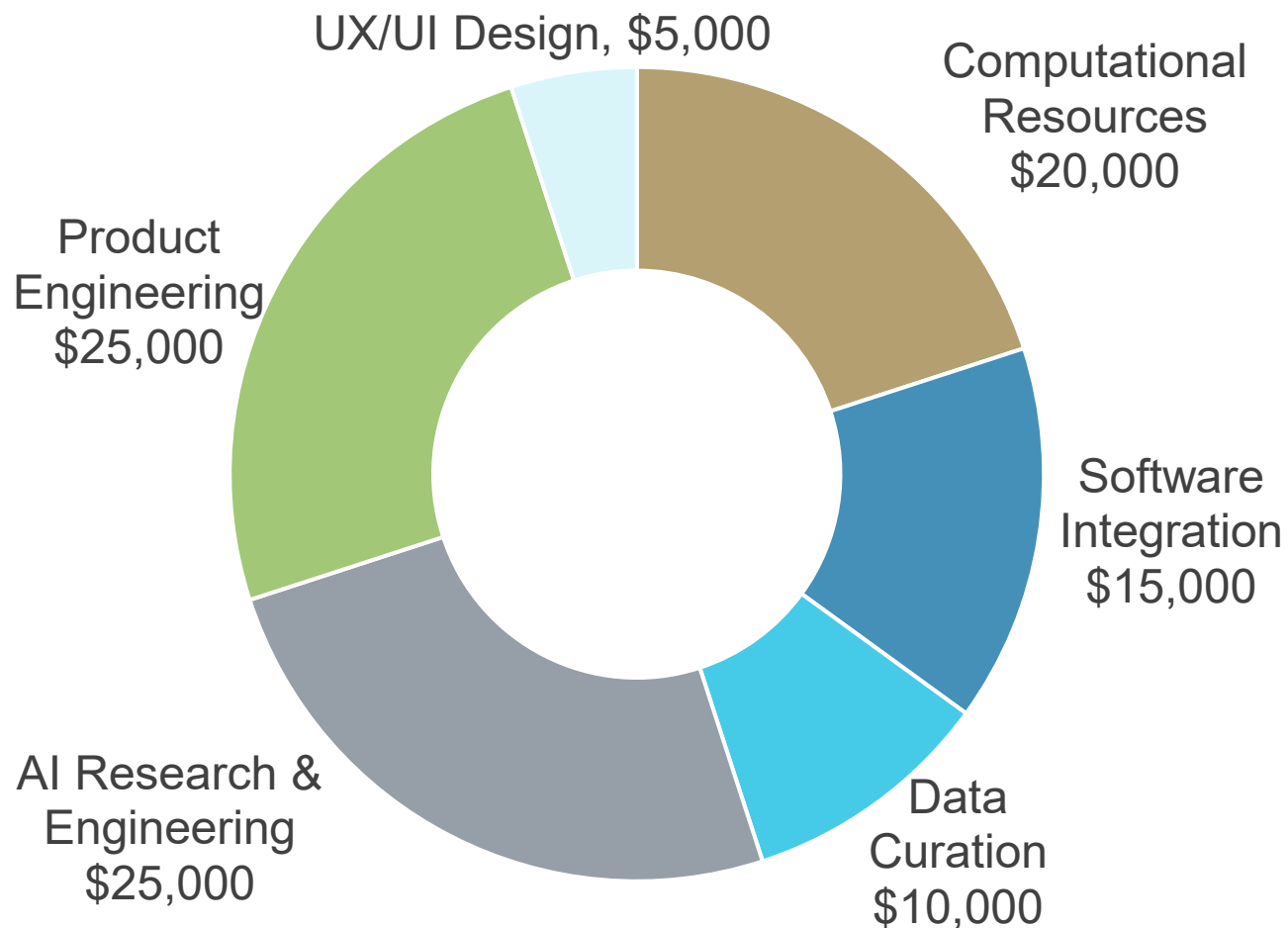
Competitive Advantage

-  *Nimble*
-  *Turnkey*
-  *Adaptable*
-  *Low Technical Fit*
-  *Highly Specialized*

Requested funds to support further development and scaling of our products

Our Ask: \$100,000

- Product Engineering
- AI Engineering
- Computational Resources
- Software Integration
- Data Curation
- UX / UI Design



Initial reactions to Juni Products has been incredibly positive from radiologists



Juni Health has received **multiple awards to date** (e.g. QI Award @ RSNA & Gold Award @ ACR QS&I) around its **novelty and clinical importance**

Yale Information Security

Juni Health has been **approved by the YNHH Office of Information Security** as of February 2024 for use in YNHH workflows



CRAIG impression generator and our Education Platform are **currently live and in use with radiologists at YNHHS** and receiving **positive initial reviews**



Reactions from Early Users

*"[CRAIG] has been **very strong** for **complex trauma cases!**"* – KT, Resident

*"**Surprisingly accurate** given that it wasn't trained on my data" – KF, Private Practice Radiologist*

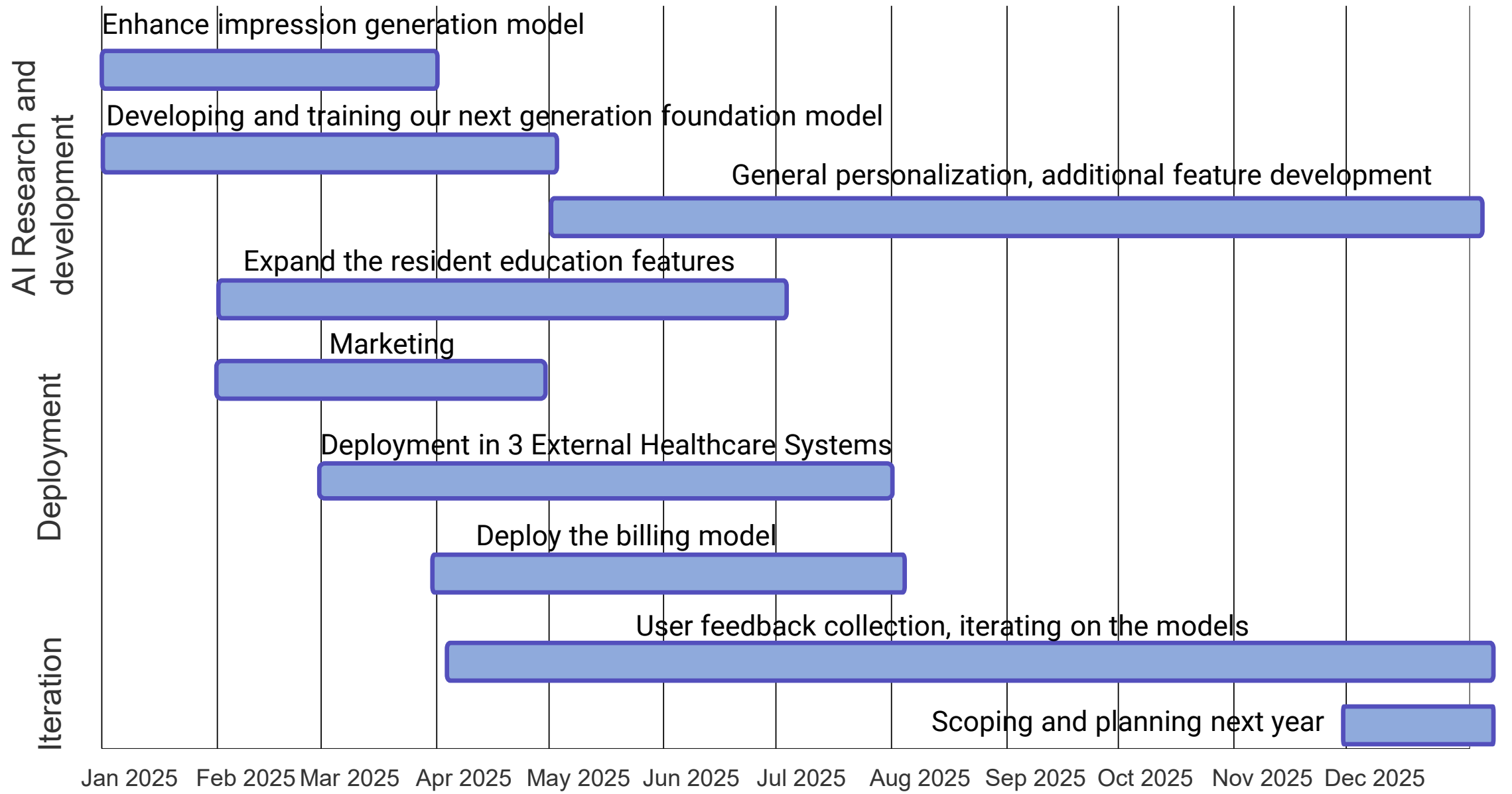
"R.K. rads resident: I have used the Juni application in several rotations and **have found it valuable** in both my educational and professional tasks.

*"**Very great stuff.** I think I edited some of the impressions sometimes just for personal wording preferences but **was very accurate**"* – KG, Resident

J.K. *"I liked it! I felt **like it did a really good job** on the incidental malignancy"*

A.G. *"Overall Pretty helpful... **really good for the complex ones**"*

Key Milestones and Timeline



Thanks!

Interventional Radiology



Sophie Chheang, MD/MBA
(sophie@junihealth.com)

- Assistant Professor, Yale School of Medicine
- Associate Director of Informatics, Department of Radiology & Biomedical Imaging
- Interventional Radiology

AI/ML Research and Development



Arman Cohan, PhD
(arman@junihealth.com)

- Assistant Professor, Department of Computer Science (Yale University)
- Research Focus on AI, Natural Language Processing, and LLMs

Technology and Software Development



Ryan Martin
(ryan@junihealth.com)

- Vice President of Engineering, Vesta Healthcare
- Previous experience: Zocdoc, Medly Pharmacy

Diagnostic Radiology



Kyle Tegtmeier, MD
(kyle@junihealth.com)

- Radiology resident, Yale School of Medicine
- Diagnostic Radiology

The Juni Health team brings extraordinary interdisciplinary experience in Radiology, Computer science, AI, and Machine Learning