PaperWave: Listening to Research Papers as Conversational Podcasts Scripted by LLM

CHI2025 Case Studies - 2025/04/29

Yuchi Yahagi *1, Rintaro Chujo *1, Yuga Harada *2, Changyo Han *1, Kohei Sugiyama *1, Takeshi Naemura *1

*1 The University of Tokyo *2 Educe Technologies Paper Wave

Episodes



PERSONAL PROPERTY AND INCOME.

PaperWave: Listening to Research Papers as Conversational Podcasts Scripted by





Reviewers

Attendees

Home » Guide to a Successful Video Submission

Upcoming Deadlines

All times are in Anywhere on Earth (AoE) time zone. The submission site of each track will open approximately four weeks before its submission deadline.

Submission September 5, 2024 Notification -

Papers - Abstract / Metadata

Submission September 12, 2024 Notification January 16, 2025

Guide to a Successful Video Submission

All video submissions are very critical to the CHI Conference. Effective videos can convey the core idea of your research strongly and attract a large audience, helping dissemination of your research. Please be sure to follow the guides on this page if you are making a video figure, a demonstration video, or a video

Sponsors and Exhibitors

Press and Media

SIGCHI Guide for Videos



Organizing



Introduction









Research Paper

[41] Elisa Tattersall Wallin and Jan Nolin. 2020. Time to Read: Exploring the Timespaces of Subscription-Based Audiobooks. New Media & Society 22, 3 (March 2020), 470–488.





Conversational Podcast



Design insights remain sparse

There are various systems that adopt documents to podcasts with different aim [11, 18, 19, 46].

What are the design considerations for document-to-audio adaptation systems?

[11] Fika Media. This is recast. Retrieved September 12, 2024 from <u>https://</u> www.letsrecast.ai/ [18] Google. 2024. Illuminate. https://illuminate.google.com/ [19] Google. 2024. NotebookLM. https://notebooklm.google/ [46] Wondercraft, Inc. [n. d.]. AI Powered Audio Studio - Wondercraft. Retrieved July 29, 2024 from <u>https://www.wondercraft.ai/</u>



Understanding complex content faster

Illuminate [18]

Bringing Research to Life.

PaperWave



Wondercraft [46]

.....











Aim of Study

Provide a nuanced understanding of how document-to-podcast adaptercan broaden opportunity for engaging with knowledge.











Research Questions









Research Questions

[RQ1] In what contexts can PaperWave be effectively used?



Research Questions

- [RQ1] In what contexts can PaperWave be effectively used?
- [RQ2] Which aspects of engagement with knowledge can PaperWave enhance, and how?

Method

Methods

Autobiographical Design

[29] C. Neustaedter and P. Sengers, "Autobiographical design in HCI research: designing and learning through use-it-yourself," in Proceedings of the Designing Interactive Systems Conference, in DIS '12. New York, NY, USA: Association for Computing Machinery, 11 2012, pp. 514–523.
 [30] C. Neustaedter and P. Sengers, "Autobiographical design: what you can learn from designing for yourself," interactions, vol. 19, no. 6, pp. 28–33, Spring 2012.

	#proj-paperwave-diary		6	CHI20
# proj-paperwave-diary 日記		11 67 · ·		
▲ メッセージ ⑦ canvas ◎ ファイル □ 関連ページ ☆ ピン +				
yugaharada 13:49 クロネコに行くためPaperWaveを聴く 4件の返信 最終返信: 7ヶ月前	2024年8月24日 ~		Diary in Sla	ck
	2024年8月27日 ~			
 矢作 優知 10:46 昨日の夜、寝る前(0時過ぎ)に歯磨きしながら聞いてた 聞いてたら眠くなった。内容がつまらないとかじゃないけど、眠い時間に聞いて A mobile learning system for scaffolding bird watching learning 	てると「寝落ち」的なパケ 、 1 + / + * + + - + + + + + + + + + + + + + + +	פא ⊑ ם gitl	hub.com	 i
https://paperwave.app/episodes/SRByqryLL6oUGqSrwgSs paperwave.app PaperWave Voicing Papers, Bringing Research to Life.	E C nae-lab / paperwave-cli		Q	- + - O II @
2 件の返信 最終返信: 7ヶ月前	<> Code Issues Issues	ests 🕞 Actions 🖽 Wiki	🕑 Security 19 🗠 Insigh	ts 🔯 Settings
 Changyo Han 11:45 帰省から日常に戻ってきてPaperWaveする心の余裕ができたので初めてWebアン 16 件の返信 最終返信: 6ヶ月前 2人の外部の人が bobbieslab と ワークスペース から参加しています 	2024年8月28 アリで収録 + 最新メッセ	S Ec	dit Pins - O Unwatch 4 -	♀ Fork ● ☆ Star 4
$\mathbf{B} \mathbf{I} \mathbf{C} \mathbf{A} \mathbf{C} \mathbf{A} \mathbf{C} \mathbf{A} $	P dev - P V	Ge	o to file + <> Code +	About
#proj-paperwave-diary へのメッセージ + Aa ① の □ □ � □ □	FlechaMaker 0.1.29		78c5995 · last week	No description, website, or top provided.
	downloads	Fix: downloadsフォルダがなく	て実行が… 7 months ago	C Readme
	scripts	Update copyright year to 202	5 and upgr last month	▲ LGPL-3.0 and 2 other licenses found
	src	Switch to azure OpenAI TTS A	PI last week	- Activity
	dockerignore	Docker環境でspinniesを無効化	5 months ago	\therefore 4 stars
	env.example	firestoreのコレクションを環境	変数で指定 5 months ago	• 4 watching
Dev. Logs in Gi		Add batch.sh to .gitignore	3 months ago	Report repository

Methods

Autobiographical Design

Usage with Secondary Users

Participants

5 authors

August 18

July 31

そこにしかない

RAPID

-71 たがら

Expedic

() C 中野・立川・八王子・高尾方面 for Nakano, Tachinawa, Hachoji & Takao

4

7:02 TAKAO 7:07 OME

中野·立川·八王子·高尾方面 for Nakano, Tachikawa, Hachibil & Takao

8:06 松 本 8:10 武蔵小金井

August 4

August 19

August 4

2 months use in daily lives

August 29

Methods

Autobiographical Design

Usage with Secondary Users

.....

Design Workshop

グループ1

グループ2

 Normality
 <t

17

System Overview

Findings

RQ1: PaperWave Enables Mobile Reading of Papers

From focused coding on diary entries

While traveling

Public transportation (A1, A2, A3, A4, P1, P2), walk (A1, P2, P5), drive (A1)

While performing activities

Housework (A1, P2, P5), childcare (A4, P6), preparing for going out (A1, P3), paperwork (A1), video editing (P3)

In break time

Waiting (A3, A5), before sleeping, eating (A1), sitting in a massage chair (P6), during work breaks (P5)

RQ2: PaperWave Changes the Participants Engagement with Knowledge

From discussion in the design workshop

Lowers the Barrier

PaperWave lowered the barrier to engaging with research papers.

"The hurdle to deciding whether or not to engage with is lowered. I feel like I can try listening to it just for now." (P1)

Different Emphasis

Participants attention shifted to different aspects of the content.

"information often overlooked in text became significant when listened." (A2)

Focus on Paper's Body

Discussions centered on the paper's body. Opinions varied on this point.

"I feel the difference comes from whether a person wants to read the research results (A3), or the introduction (A5)" (A5)

Lacking Information

Concerns about inaccuracies.

"When the content is almost at the edge of hallucination it raises the question of whether I wrote it badly or if LLM's analytical abilities are deficient." (A4)

.....

Discussions

Engagement with Papers while We Are Situated in the Physical World

Nuance of Modality Change Impact

Differences in Authors' Relationship with Research Papers

.....

Demo is available!

https://paperwave.app

Episodes Channels Reco	ording		
Episodes			
Image: Constrained state PaperWave	09/11/2024, 12:58 PM - recorded by Yuchi Yahagi AdaCAD: Parametric Design as a New Form of Not Weaving 0:00 -9:00		
Image: Contract of the second seco	09/10/2024, 08:50 PM - recorded by Yuchi Yahagi Mediating Culture: Cultivating Socio-cultural Under Children through Participatory Design		

