

# EXHIBIT C

**Subject:** FW: CHI 2005 Papers notification - #288

**Date:** Monday, December 13, 2004 6:52:44 PM ET

**From:** Amy Karlson

**To:** Bederson, Ben

Yeah!

-----Original Message-----

From: [chi2005-papers@acm.org](mailto:chi2005-papers@acm.org) [<mailto:chi2005-papers@acm.org>]

Sent: Monday, December 13, 2004 5:48 PM

To: [akk@cs.umd.edu](mailto:akk@cs.umd.edu)

Cc: [chi2005-papers@acm.org](mailto:chi2005-papers@acm.org)

Subject: CHI 2005 Papers notification - #288

Dear Amy Karlson

We are pleased to inform you that your paper

288 - AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices

has been accepted as a full paper to the CHI 2005 conference. CHI 2005 accepted only 93 papers as full papers out of 371 submissions.

This year acceptances to the CHI 2005 papers program are considered conditional upon a revision of the paper by the author and final review and recommendation by the Associate Chair handling your submission. A CHI long paper represents a significant contribution to the HCI field, and this year we took strides to obtain an expert and thorough set of reviews for each submission. Most papers received at least some suggestions for improvement; guidelines that reflect the most pressing issues from the set of reviews and the discussion at the program committee meeting are summarized in your meta-review below.

We encourage you further improve your paper based on this input. In your final revision, you should address the problems and improvements the Associate Chair has outlined in the meta-review, and prepare a short revision letter outlining the changes you've made in response to the points raised. You will need to upload your final revision to the "PCS" system along with your revision letter. The Associate Chair will review the final revision and make a recommendation to the Papers Chairs; final decisions will be made by the Chairs. Papers failing to satisfactorily address the issues outlined in the meta-review may not be included in the papers program. Your revision is due on Jan 10, 2005 and must be uploaded into the PCS system by 5:00PM Pacific Standard Time (+8:00 GMT).

Congratulations for making it this far. We look forward to receiving your revised version and hearing your work at the conference.

Sincerely,

Wendy A. Kellogg & Shumin Zhai

The PCS system:

[www.precisionconference.com/~sigchi](http://www.precisionconference.com/~sigchi)

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----- Paper 288, Review 4 -----

Title: AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices

Reviewer AC

Overall rating 4 (scale is 1..5; 5 is best)

Contribution to HCI

Presents two new interfaces, based on zooming, for switching between applications on a small platform with a small screen, using one hand, along with a user study evaluating it.

The Meta-Review

The paper presents a nice blend of innovative new technology/UI design with user evaluation. The new interfaces use different forms of zooming to switch between applications, to make effective use of the very small screen space available. The work falls into the category of scalable user interfaces, which is an important area for the wide range of current small platforms. In addition, explicit thinking about one-hand usage of the input device on a small platform is relatively novel.

The reviewers seem to feel that this is a good paper, but not perfect, they noted some flaws and problems, also complained that its contribution could have been a little more focused, but they generally liked the work.

Associate Chair's Additional Comments

Overall Associate Chair Rating

4 (Probably accept: I would argue for accepting this paper)

Comments on Overall Recommendation

While this is a good contribution, there are enough flaws in the paper noted by the reviewers to indicate a "4" rather than a "5"

----- Paper 288, Review 1 -----

Title: AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices

Overall rating 4 (scale is 1..5; 5 is best)

Expertise Rating

3 (Knowledgeable: I have some expertise in this area: I've worked in the area and have followed its literature reasonably recently)

Contribution to HCI

Contribution to HCI: Proposes two designs for displaying and navigating between multiple applications on a small display. The application shells can be controlled single-handedly with thumb gestures. Assesses usability of the systems in two ways: a controlled study of the gestures used in one design, and a qualitative comparison of the two designs.

The Review

Relevant previous work: The most direct predecessor is DateLens (Bederson et al., 2003), although the growing body of work on small screen displays is also relevant. Previous work focused on single applications. This paper extends these ideas to inter-application navigation and display. The two designs presented are nice engineering applications of well-established HCI methods such as focus+context and zooming interfaces.

Significance of the contribution and benefit: I am impressed by the ambition and completeness of these designs. The designs clearly show a lot of work on detailed design and implementation. These details provide excellent food for thought for designers working in small screen displays.

The two studies at the end seem weaker. They are sketchily described and rather narrow in focus. They do not provide a more general comparison between the designs.

Overall, the contribution suffers from the paper's deliberately diffuse focus. Presented with two designs and two studies, I found it hard to specify an exact contribution. Granted, the common theme is one-handed control of designs for navigation shells. However, within that broad theme, the paper aims at several different targets. For example, the Conclusion section mentions one-handed, notification-based, and scalable designs. To my reading, the issue of notification-based designs was not meaningfully addressed, as the notification processes are more alluded to than described and the participants in both studies did not work with applications receiving live data from external sources. With respect to one-handedness, the first study addresses one-handed gestures, but its results are not integrated into any general discussion. The second study merely reports that users thought they would prefer a one-handed interface, based upon only brief exposure to the authors' systems.

Validity of the work presented: The design was completely described,

although in a few places I wanted more details. However, the first study has insufficient detail to be replicated (task incompletely described, layout of screen unclear). The second study is formative and local, more likely to provide guidance to the authors than insight to the readers.

Originality of the work: I like the creativity of these designs, and I particularly appreciate the authors giving us two rather different points in the design space.

#### Areas for Improvement

1. Provide a screen shot of the first study configuration. It is not clear to me just how many layers of navigation were presented (2?). Provide more description of the task.
2. Remove the forward reference to LaunchTile on p. 3, within the description of the AppLens gestures. Since LaunchTile had not been described at that point, I became quite confused.
3. Give average session lengths for both studies.
4. On p. 7, you state "...the gaps were wider on the task the first third had trouble with". This doesn't seem to be the case in Fig 5, where the gap on A\_2 is in fact wider than N\_5, despite the latter being the second most-difficult task.

#### Rating

4 (Probably accept: I would argue for accepting this paper.)

#### Additional Comments

##### Copyediting:

p. 4: "Two gestures defined by... common commands": Remove the inverted syntax and break into multiple sentences.

p. 4: First two sentences of "Using command gestures within AppLens" are complex and awkward.

p. 5: First few sentences of "Zoom Control" were confusing, although I can't put my finger on the problem.

p. 7: I suggest "Participants rated their experience using five 9-point Likert scales:" Also remove the numbers before the scale descriptions---at first reading, I thought they were scale \*values\* instead.

p. 8: Reword the sentence so that it doesn't begin with a figure (3 participants...)

p. 8: Again, don't introduce AppLens in the description of the LaunchTile results. Also, present the results of the second study in the same order as you introduce the two systems earlier in the paper.

Title: AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices

Overall rating 4 (scale is 1..5; 5 is best)

#### Expertise Rating

4 ( Expert: I am an expert in this area: I have published or worked in the area and follow the literature closely)

#### Contribution to HCI

This paper presents two interfaces for navigating and browsing a set of applications on a PDA or Smartphone that support one-handed thumb interaction. User studies show that the techniques have some promise, at least for PDAs.

#### The Review

This paper contributes two interesting designs for combining one-handed thumb based interaction with Scalable-UI techniques for mobile devices. One-handed interaction on mobile-devices is an important area for current research, as I believe people want to use one hand to interface with their devices but there are few, if any, popular methods in the commercial or research spaces. The only one of note might be the iPod, but that isn't as general purpose a device as the PDAs and phones that the interfaces in this paper target.

The two presented interfaces are called AppLens and LaunchTile. The AppLens interface is interesting because it combines three different levels of a tabular fisheye view with a gesture-based interface for navigation. The gesture design seems to be well thought out for use with the thumb. The LaunchTile interface, by comparison, does not seem nearly as original. Its somewhat reminiscent of the Zone Zoom technique developed at Microsoft (Robbins, D., Cutrell, E., Sarin, R., Horvitz, E., ZoneZoom: Map Navigation for Smartphones with Recursive View Segmentation, Proceedings of Advanced Visual Interfaces, Gallipoli, Italy). The only organization of apps is tiling and the design of the blue button (as discovered in the second study) does not seem well thought out. Having access to 36 applications also seems a little unnecessary. I think I use only about 10 apps regularly on my Smartphone, and even the example screenshot in the paper does not show 36 convincing apps. I also have a hard time imagining that this interface would scale well to the smaller screen of a Smartphone.

This paper cites most of the relevant work that I am aware of. The iPod is probably worthy of a mention. There was also a short paper at CHI'03 about thumb input on mobile phones that the authors might wish to mention (Hirota, N. Reassessing current cell phone designs: Using thumb input effectively. Extended Abstracts of ACM CHI '03. Ft. Lauderdale, Florida, April 2003, 938-939). The EdgeWrite

text entry method (Wobbrock, J.O., Myers, B.A. and Kembel, J.A. EdgeWrite: A stylus-based text entry method designed for high accuracy and stability of motion. Proceedings of ACM UIST '03. Vancouver, B.C., November 2003, 61-70) is more conducive to use of the thumb than the methods this paper mentions... It might be interesting to think about some of these interaction concepts within the constraints of the physical edges used by Edgewrite.

In general, it seems like more iteration is needed with these interfaces. The user studies presented at the end of the paper discover problems that are interesting but should have been fixed. I would particularly like to know how the LaunchTile interface fares compared to AppLens when the Blue button is updated to deal with the overloading problem. I think that there also needs to be some validation of these interfaces against other existing interfaces. Most phones allow one-handed interaction already, so I think there is some opportunity to do comparisons with other designs. I would also like to see some follow-on studies to show that these interfaces are viable and usable designs for the Smartphone in addition to the PDA.

#### Areas for Improvement

The writing was clear. The only improvement I can suggest would be to make the description of the LaunchTile interface clearer. Until watching the video, I didn't completely understand some aspects of this technique. In particular the part about blue snapping zones to the center in Panning Techniques was confusing to me.

The discussion of the studies could also be tightened up. They don't contribute much to the overall paper... It would almost be better to spend some more effort talking about the design decisions made in creating the interfaces rather than showing some limited validation.

#### Rating

4 (Probably accept: I would argue for accepting this paper.)

#### Additional Comments

----- Paper 288, Review 3 -----

Title: AppLens and LaunchTile: Two Designs for One-Handed Thumb Use on Small Devices

Overall rating 3 (scale is 1..5; 5 is best)

#### Expertise Rating

3 (Knowledgeable: I have some expertise in this area: I've worked in the area and have followed its literature reasonably recently)

#### Contribution to HCI

This paper shows two zooming interfaces for application finders, which primarily address the problem of switching between applications on a PDA or mobile phone.

## The Review

This paper is tackling an important problem: navigating between applications on a small device takes time and attention, and finding ways to do these operations one-handed is clearly valuable to users.

The paper has good coverage of related work; I don't have anything to add.

The two designs presented are interesting points in the design space, and I enjoyed reading about them as case studies. But it isn't clear what contribution or design lessons can be taken away from them.

One possible contribution is command gestures: single-thumb strokes that move an object cursor around the screen. But I don't understand the advantage of this idea over simple directional hardware (i.e. an arrow diamond or joystick). Hardware buttons are already built into PDAs and cellphones, and don't have any of the disadvantages seen in the user study of command gestures.

Another possible contribution is applying the tabular fisheye design to applications, so that one application occupies most of the screen, and other applications are tiled at much smaller sizes, presenting only high-value information.

One truly novel idea is the "Blue" button, a central component of the display which serves a variety of purposes: navigation landmark, navigation button, and selection toolglass. Although the user studies were mixed on the effectiveness of Blue, it's thought-provoking.

Overall then, it's good work in an important area that's certainly relevant to CHI, but the take-home message and significance is a little fuzzy.

## Areas for Improvement

The paper was for the most part very clear and accessible, but a few parts were confusing:

(1) What do FORWARD and BACKWARD do? The paper said they were equivalent to Tab and Alt-Tab on Windows, but that doesn't make sense: Tab steps between form fields, and Alt-Tab steps between applications.

(2) This sentence was perplexing: "If the current target is an internal target in an activated state, the CANCEL button deactivates the target."



(3) "the directional gestures are semantic in design" was vague; after all, every interface element is designed with some kind of semantics. Perhaps what was meant is that the directional gestures are directly mapped to their function (up, down, left, right)?

Rating

3 (Borderline: Overall I would not argue for accepting this paper.)

Additional Comments