Fondements de l'interaction Homme-Machine

Travaux Dirigés

http://wiki.lri.fr/hcimasters/fondamentals_of_hci_tutor.wiki

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What will we do?

Retro-engineer a research article

- Choose and carefully read I (or 2) article(s)
- Implement the interaction techniques described in it (2 at least)
- Replicate (or design a variant of) the experiment described in it

Olivier Chapuis, Jean-Baptiste Labrune, and Emmanuel Pietriga. 2009. DynaSpot: speed-dependent area cursor. In Proceedings of the 27th international conference on Human factors in computing systems (CHI '09). ACM, New York, NY, USA, 1391-1400.

 Introduces a new technique, DynaSpot, to facilitate target acquisition in a 2D space.
 DynaSpot is an area cursor whose size depends on the cursor speed



Olivier Chapuis, Jean-Baptiste Labrune, and Emmanuel Pietriga. 2009. DynaSpot: speed-dependent area cursor. In Proceedings of the 27th international conference on Human factors in computing systems (CHI '09). ACM, New York, NY, USA, 1391-1400.

 Compares DynaSpot with Bubble Cursor on a 2D pointing task where more or less distractors are along the cursor trajectory



DynaSpot

Speed-Dependent Area Cursor

Wednesday, 28 September 2011

WORK TO DO

- Implement DynaSpot and Bubble Cursor
- Replicate the experiment DynaSpotVS.
 Bubble Cursor

Caroline Appert and Jean-Daniel Fekete. 2006. OrthoZoom scroller: ID multi-scale navigation. In Proceedings of the SIGCHI conference on Human Factors in computing systems (CHI '06), Rebecca Grinter, Thomas Rodden, Paul Aoki, Ed Cutrell, Robin Jeffries, and Gary Olson (Eds.). ACM, New York, NY, USA, 21-30.

 Introduces a new technique, OrhoZoom, to facilitate target acquisition in a ID space.
 OrhoZoom allows the user to adjust the zoom factor through displacements



Caroline Appert and Jean-Daniel Fekete. 2006. OrthoZoom scroller: ID multi-scale navigation. In Proceedings of the SIGCHI conference on Human Factors in computing systems (CHI '06), Rebecca Grinter, Thomas Rodden, Paul Aoki, Ed Cutrell, Robin Jeffries, and Gary Olson (Eds.). ACM, New York, NY, USA, 21-30.

 Compares OrhoZoom with Speed Dependent Automatic Zooming on scrolling task in which target location is known.





OrthoZoom

1D Multi-Scale Navigation

| 🐮 data/shaks/shaks.shtmi.idc12 | -0* |
|--|--|
| OrthoZonm SDAZ | |
| and our waves heets | 1 . |
| LEONATO | 2020* |
| We'll have dancing afterward | 1910 |
| BENEDICK | |
| First, of my word, therefore play, music. Prince, | |
| thou art sad, get thee a wife, get thee a wife | |
| there is no staff more reverend than one tipped with horn | |
| Enter a Messenger | |
| Messenger | |
| My lord, your brother John is ta'en in flight, | |
| And brought with armed men back to Messina | |
| BENEDICK | |
| Think not on him till to-morrow. | |
| I'll devise thee brave punishments for him. | |
| Stnke up, pipers | |
| Dance | |
| Exeunt | |
| The Tragedy of Othello, the Moor of Ven | ice |
| Dramatis Personae | |
| DUKE OF VENICE | |
| BRABANTIO, a senator | |
| Other Senators. | |
| GRATIANO, brother to Brabantio | |
| LODOVICO, kinsman to Brabantio | |
| OTHELLO, a noble Moor in the service of the Venetian state | |
| CASSIO, his lieutenant | |
| IAGO, his ancient | |
| RODERIGO, a Venetian gentleman. | |
| MONTANO, Othello's predecessor in the government of Cyprus | |
| Clown, servant to Othello. | ······································ |
| DESDEMONA, daughter to Brabantio and wife to Othello | |
| EMILIA, wife to Jago | Zoom 1 |
| RIANCA mistress to Cassio | |



WORK TO DO

- Implement OrthoZoom and Speed Dependant Automatic Zooming
- Replicate the OrthoZoomVS.SDAZ experiment

Shengdong Zhao and Ravin Balakrishnan. 2004. Simple vs. compound mark hierarchical marking menus. In Proceedings of the 17th annual ACM symposium on User interface software and technology (UIST '04).

 Introduces a new way of navigating in hierarchical marking menus. Uses simple marks instead of a compound mark.





Shengdong Zhao and Ravin Balakrishnan. 2004. Simple vs. compound mark hierarchical marking menus. In Proceedings of the 17th annual ACM symposium on User interface software and technology (UIST '04).

 Compares simple marks with compound marks for an item selection task (expert)



 What follows is an excerpt from Shengdong Zhao's talk at UIST



















dgp Dynamic Graphics Project University of Toronto www.dgp.toronto.edu



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Dynamic Graphics Project University of Toronto www.dgp.toronto.edu



Dynamic Graphics Project University of Toronto www.dgp.toronto.edu Place your pen in the circle to start:





WORK TO DO

- Implement Simple and Compound marks navigation techniques for marking menus
- Replicate the Simple VS. Compound experiment

Johnny Accot and Shumin Zhai. 2002. More than dotting the i's --- foundations for crossing-based interfaces. In Proceedings of the SIGCHI conference on Human factors in computing systems: Changing our world, changing ourselves (CHI '02). ACM, New York, NY, USA, 73-80.

 Proposes to activate interactive graphical components by crossing them



Johnny Accot and Shumin Zhai. 2002. More than dotting the i's --- foundations for crossing-based interfaces. In Proceedings of the SIGCHI conference on Human factors in computing systems: Changing our world, changing ourselves (CHI '02). ACM, New York, NY, USA, 73-80.

 Compares crossing activation with pointing activation. Proposes a law to model crossing tasks.



CrossY A crossing based drawing application

Georg Apitz, François Guimbretière UMD/HCIL

WORK TO DO

- Pick I or 2 cross-based widgets in the CrossY interface and implement them.
- Replicate the Crossing VS. Pointing experiment

Project#5: Gesture Recognition

Yang Li. 2010. Protractor: a fast and accurate gesture recognizer. In Proceedings of the 28th international conference on Human factors in computing systems (CHI '10). ACM, New York, NY, USA, 2169-2172.

 Introduces a new gesture recognizer, Protractor. It computes the angular distance between an input gesture and a set of template gestures so as to output the closest template gesture.

Project#5: Gesture Recognition

Yang Li. 2010. Protractor: a fast and accurate gesture recognizer. In Proceedings of the 28th international conference on Human factors in computing systems (CHI '10). ACM, New York, NY, USA, 2169-2172.

 Compares recognition rate of Protractor with recognition rate of \$1 recognizer.



Project#5: Gesture Recognition

WORK TO DO

- Implement the \$1 and Protractor gesture recognizers and design 2 gesture vocabularies {vocabulary₁, vocabulary₂}
- Collect gestures so as to compute recognition rates under 6 conditions: {\$1, Protractor} x {ink, no ink} x {vocabulary₁, vocabulary₂}