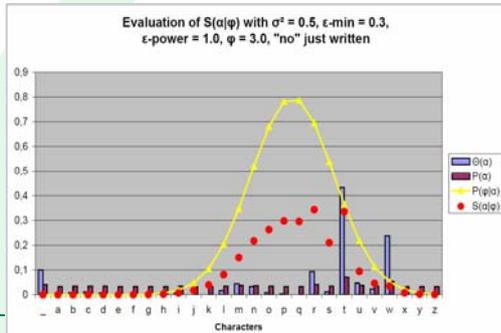


Design of algorithm

$$S(\alpha|\varphi) = (\varepsilon_{Min} + \Theta(\alpha))^{\varepsilon_{Power}} \cdot e^{-(\varphi - \varphi_{\alpha})^2 / 2\sigma^2}$$



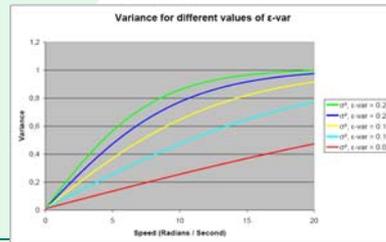
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Defining ε -Power and σ^2

$$\sigma_t^2 = x \cdot \sigma^2 + (1 - x) \cdot \sigma_{t-1}^2, \quad x \in [0; 1]$$

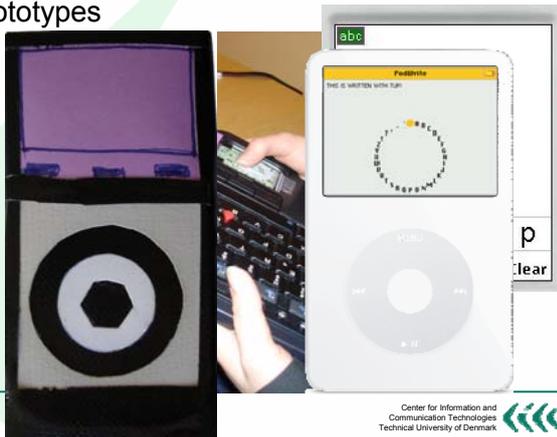
$$\sigma^2 = 0.01 + \frac{2}{1 + e^{-|\varphi| - \varepsilon_{Power}}} - 1$$



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Prototypes



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Usability evaluations

Methods:

- TUP 6.2 WPM (31 chars)
- Date Stamp 4.7 WPM (24 chars)
- Error rate: 1.2 - 2.4 %
- iPod (experienced writer) \approx 10 WPM



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Developing for the Apple iPod

- ⌘ iPodLinux <http://ipodlinux.org/>
- ⌘ RockBox <http://rockbox.org/>



- ⌘ Installation of custom boot loader
- ⌘ μ CLinux, port of linux to embedded devices
- ⌘ Graphic toolkits (TTK and Hotdog)
- ⌘ Podzilla user interface
- ⌘ C, C++ and python (no gui for python)



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Future work

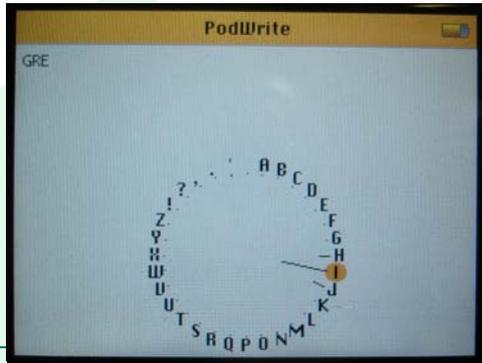
- ⌘ Add visualization
 - Give the user clues about most likely characters
 - Allow the user to have insight in the algorithm
- ⌘ Audio feedback



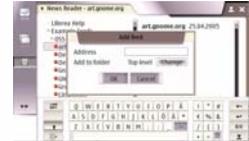
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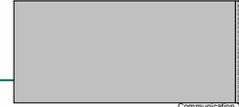
Visualization examples



New prototype based on Nokia 770



- ◀ TUP will take up less screen real estate and be usable without the stylus
- ◀ Linear input and output



Other work

- ◀ Adaptive language models
- ◀ Context aware language models
- ◀ Modeling text input with information theory
- ◀ Make prototypes with extensive data logging to analyze effects of adaptive language models and human motor precision improvements