

VU Research Portal

Making sense of haptics

van Beek, F.E.

2016

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

van Beek, F. E. (2016). *Making sense of haptics: fundamentals of haptic perception and their implications for haptic device design*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

Making sense of haptics

fundamentals of haptic perception and their implications for haptic device design

Femke E. van Beek

The research in this thesis was performed at the Physics of Man group of Utrecht University, Helmholtz Institute and at the Faculty of Behavioural and Movement Sciences of the Vrije Universiteit Amsterdam, MOVE Research Institute Amsterdam, The Netherlands. This research was part of the H-Haptics program and was supported by the Dutch Technology Foundation STW, which is part of the Netherlands Organisation for Scientific Research (NWO) and partly funded by the Ministry of Economic Affairs (project number 12157).



connecting innovators

Cover: Jörg van Beek

Printer: Ipskamp Drukkers Amsterdam

ISBN: 978-94-028-0201-6

Copyright ©2016 by Femke van Beek

All rights reserved. No part of this book may be reproduced or transmitted in any form or by all means, electronic or mechanical, including photocopying, recording or any information storage and retrieval system, without the written permission of the author.

VRIJE UNIVERSITEIT

Making sense of haptics

fundamentals of haptic perception and their implications for haptic device design

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof. dr. V. Subramaniam,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de Faculteit der Gedrags- en Bewegingswetenschappen
op maandag 27 juni 2016 om 15.45 uur
in de aula van de universiteit,
De Boelelaan 1105

door

Femke Elise van Beek

geboren te Enschede

promotor: prof. dr. A.M.L. Kappers
copromotor: dr. W.M. Bergmann Tiest