

# Norman Hansen, M.Sc.

## Kontakt

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Büro: 2314

## Forschungstätigkeit

Die Arbeit als studentische Hilfskraft an [The HyReach Toolbox](#) brachte mich erstmals in Kontakt mit Matlab und der Thematik der Verifikation eingebetteter Systeme. Begeistert von der Thematik schrieb ich meine Masterarbeit zum Thema „Statische Analyse von Matlab-Simulink-Modellen mittels Intervallen“ was schließlich mit Beginn meiner Tätigkeit als wissenschaftlicher Mitarbeiter am Lehrstuhl Informatik 11 zu einer Beteiligung am [artshop](#)-Projekt führte. Neben dem generellen Interesse für die Verifikation eingebetteter Systeme interessiere ich mich derzeit insbesondere für das Testen von Matlab-Simulink Modellen und wirke an der Entwicklung von [Arttest](#) mit.

## Abschlussarbeiten

Bei Interesse an einer Bachelor- oder Masterarbeit im Themenbereich Testen und Verifikation von modellbasierter Software im Automobilsektor informiere ich gerne unverbindlich über derzeit verfügbare Themen.

## Lehre

### SS2017

[Eingebettete Systeme \(V\)](#)

[Modellbasiertes Testen & Analyse eingebetteter Software \(S\)](#)

### WS16/17

[Modellbasiertes Testen & Analyse eingebetteter Software \(S\)](#)

## SS2016

[Einführung in eingebettete Systeme \(V\)](#)

[Modellbasiertes Testen & Analyse eingebetteter Software \(S\)](#)

## WS15/16

[Praktikum Systemprogrammierung - Versuch 4: Externer Speicher \(P\)](#)

[Modellbasiertes Testen & Analyse eingebetteter Software \(S\)](#)

## SS2015

[Einführung in eingebettete Systeme \(V\)](#)

[Praktikum Systemprogrammierung - Versuch 4: Externer Speicher \(P\)](#)

[Modellbasiertes Testen & Analyse eingebetteter Software \(S\)](#)

## Sprechstunde

Nach Vereinbarung

## Veröffentlichungen

[BHK17]

[PDFBIB](#)

Ben Makhlof, I., Hansen, N., and Kowalewski, S., "HyReach: A Reachability Tool for Linear Hybrid Systems Based on Support Functions", in *Proc. ARCH16. 3rd International Workshop on Applied Verification for Continuous and Hybrid Systems / Editors: Goran Frehse and Matthias Althoff*, 2017 in EPiC Series in Computing, pp. 68-79.

## HyReach: A Reachability Tool for Linear Hybrid Systems Based on Support Functions

### Bibtex entry :

```
@inproceedings { BHK17,  
  author = { Ben Makhlof, Ibtissem and Hansen, Norman and  
  Kowalewski,  
  Stefan },  
  title = { HyReach: A Reachability Tool for Linear Hybrid Systems
```

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Based
    on Support Functions },
    booktitle = { ARCH16. 3rd International Workshop on Applied
Verification
    for Continuous and Hybrid Systems / Editors: Goran Frehse
    and Matthias Althoff },
    pages = { 68-79 },
    series = { EPiC Series in Computing },
    year = { 2017 },
    organization = { 3rd International Workshop on Applied Verification
for
    Continuous and Hybrid Systems, Vienna (Austria), 2016-04-12
    - 2016-04-12 },
    typ = { PUB:(DE-HGF)7 },
    reportid = { RWTH-CONV-213474 },
    cin = { 122810 / 120000 },
    url = { https://easychair.org/publications/paper/334327 },
}

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[HWK+17]

[PDFBIB](#)

Hansen, N., Wiechowski, N., Kugler, A., Kowalewski, S., Rambow, T., and Busch, R., "Model-in-the-Loop and Software-in-the-Loop Testing of Closed-Loop Automotive Software with Arttest", in *Proc. INFORMATIK 2017*, 2017, Maximilian Eibl, Martin Gaedke, pp. 1537-1549.

## Model-in-the-Loop and Software-in-the-Loop Testing of Closed-Loop Automotive Software with Arttest

### Bibtex entry :

```

@inproceedings { HWK+17,
    author = { Hansen, Norman and Wiechowski, Norbert and Kugler,
Alexander
    and Kowalewski, Stefan and Rambow, Thomas and Busch, Rainer },
    title = { Model-in-the-Loop and Software-in-the-Loop Testing of
    Closed-Loop Automotive Software with Arttest },
    booktitle = { INFORMATIK 2017 },
    publisher = { Maximilian Eibl, Martin Gaedke },
    pages = { 1537-1549 },
    year = { 2017 },
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    reportid = { RWTH-CONV-236306 },
    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/752274 },
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[WRB+17]

[PDFBIB](#)

Wiechowski, N., Rambow, T., Busch, R., Kugler, A., Hansen, N., and Kowalewski, S., "Arttest - a New Test Environment for Model-Based Software Development", in *Proc. SAE Technical Paper*,

2017, SAE International, p. 11.

## Arttest - a New Test Environment for Model-Based Software Development

### Bibtex entry :

```
@inproceedings { WRB+17,  
  author = { Wiechowski, Norbert and Rambow, Thomas and Busch, Rainer  
and  
  Kugler, Alexander and Hansen, Norman and Kowalewski, Stefan },  
  title = { Arttest - a New Test Environment for Model-Based Software  
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  booktitle = { SAE Technical Paper },  
  publisher = { SAE International },  
  pages = { 11 },  
  year = { 2017 },  
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  url = { http://publications.rwth-aachen.de/record/752280 },  
}
```

[DHK16]

[PDFBIB](#)

Dernehl, C., Hansen, N., and Kowalewski, S., "Abstract Interpretation of MATLAB Code with Interval Sets", in *Proc. Critical systems: formal methods and automated verification : Joint 21st International Workshop on Formal Methods for Industrial Critical Systems and 16th International Workshop on Automated Verification of Critical Systems, FMICS-AVoCS 2016, Pisa, Italy, September 26-28, 2016 : proceedings / Maurice H. ter Beek, Stefania Gnesi, Alexander Knapp (eds.)*, Cham, 2016 in Lecture Notes in Computer Science, Springer International Publishing, pp. 25-38.

## Abstract Interpretation of MATLAB Code with Interval Sets

### Bibtex entry :

```
@inproceedings { DHK16,  
  author = { Dernehl, Christian and Hansen, Norman and Kowalewski,  
Stefan },  
  title = { Abstract Interpretation of MATLAB Code with Interval Sets  
},  
  booktitle = { Critical systems: formal methods and automated  
verification  
: Joint 21st International Workshop on Formal Methods for  
Industrial Critical Systems and 16th International Workshop  
on Automated Verification of Critical Systems, FMICS-AVoCS  
2016, Pisa, Italy, September 26-28, 2016 : proceedings /
```

```

    Maurice H. ter Beek, Stefania Gnesi, Alexander Knapp (eds.) },
    publisher = { Springer International Publishing },
    pages = { 25-38 },
    series = { Lecture Notes in Computer Science },
    year = { 2016 },
    address = { Cham },
    organization = { 21st International Workshop on Formal Methods for
Industrial
    Critical Systems, Pisa (Italy), 2016-09-26 - 2016-09-28 },
    doi = { 10.1007/978-3-319-45943-1 },
    typ = { PUB:(DE-HGF)7 },
    reportid = { RWTH-2016-12021 },
    cin = { 122810 / 120000 },
    url = { http://publications.rwth-aachen.de/record/680837 },
}

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[DHK16a]

[PDFBIB](#)

Dernehl, C., Hansen, N., and Kowalewski, S., "Combining Abstract Interpretation with Symbolic Execution for a Static Value Range Analysis of Block Diagrams", in *Proc. Software engineering and formal methods : 14th international conference, SEFM 2016, held as part of STAF 2016, Vienna, Austria, July 4-8, 2016 : proceedings / Rocco De Nicola, Eva Kühn (eds.)*, Cham, 2016 in Lecture Notes in Computer Science, Springer International Publishing, pp. 137-154.

## Combining Abstract Interpretation with Symbolic Execution for a Static Value Range Analysis of Block Diagrams

### Bibtex entry :

```

@inproceedings { DHK16a,
    author = { Dernehl, Christian and Hansen, Norman and Kowalewski,
Stefan },
    title = { Combining Abstract Interpretation with Symbolic Execution
for a Static Value Range Analysis of Block Diagrams },
    booktitle = { Software engineering and formal methods : 14th
international
    conference, SEFM 2016, held as part of STAF 2016, Vienna,
Austria, July 4-8, 2016 : proceedings / Rocco De Nicola, Eva
K{"u}hn (eds.) },
    publisher = { Springer International Publishing },
    pages = { 137-154 },
    series = { Lecture Notes in Computer Science },
    year = { 2016 },
    address = { Cham },
    organization = { Software Engineering and Formal Methods : 14th
International
    Conference, Vienna (Austria), 2016-07-04 - 2016-07-08 },
    doi = { 10.1007/978-3-319-41591-8 },
    typ = { PUB:(DE-HGF)7 },
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reportid = { RWTH-2016-12037 },
cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/680854 },
}
```

[GHD+16]

[PDFBIB](#)

Gerlitz, T., Hansen, N., Dernehl, C., and Kowalewski, S., "Artshop: A Continuous Integration and Quality Assessment Framework for Model-Based Software Artifacts", in *Proc. [12. Dagstuhl-Workshop Modelbasierte Entwicklung eingebetteter Systeme (MBEES) / Michaela Huhn (Ostfalia Hochschule - Wolfenbüttel, DE), Matthias Riebisch (Universität Hamburg, DE), Bernhard Schätz (fortiss GmbH - München, DE)]*, 2016, fortiss Technischer Bericht, pp. 13-22.

## artshop: A Continuous Integration and Quality Assessment Framework for Model-Based Software Artifacts

### Bibtex entry :

```
@inproceedings { GHD+16,
  author = { Gerlitz, Thomas and Hansen, Norman and Dernehl,
Christian
and Kowalewski, Stefan },
  title = { artshop: A Continuous Integration and Quality Assessment
Framework for Model-Based Software Artifacts },
  booktitle = { [12. Dagstuhl-Workshop Modelbasierte Entwicklung
eingebetteter Systeme (MBEES) / Michaela Huhn (Ostfalia
Hochschule – Wolfenb{"u}ttel, DE), Matthias Riebisch
(Universit{"a}t Hamburg, DE), Bernhard Sch{"a}tz (fortiss
GmbH – M{"u}nchen, DE)] },
  publisher = { fortiss Technischer Bericht },
  pages = { 13-22 },
  year = { 2016 },
  organization = { Modellbasierte Entwicklung eingebetteter Systeme,
Dagstuhl
(Germany), 2016-03-30 - 2016-04-01 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-207908 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/573828 },
}
```

[DHG+15]

[PDFBIB](#)

Dernehl, C., Hansen, N., Gerlitz, T., and Kowalewski, S., "Static Value Range Analysis for Matlab/Simulink-Models"[Bonn]: Ges. für Informatik, 2015, vol. 246, pp. 1649-1660.

## Static Value Range Analysis for Matlab/Simulink-Models

### Bibtex entry :

```
@inbook { DHG+15,
  author = { Dernehl, Christian and Hansen, Norman and Gerlitz,
    Thomas
      and Kowalewski, Stefan },
  title = { Static Value Range Analysis for Matlab/Simulink-Models },
  booktitle = { Informatik 2015 : Tagung vom 28. September – 02.
    Oktober
      2015 in Cottbus / Douglas W. Cunningham ... (Hrsg.) },
  publisher = { Ges. f{"u}r Informatik },
  pages = { 1649-1660 },
  volume = { 246 },
  series = { GI-Edition : lecture notes in informatics },
  year = { 2015 },
  address = { [Bonn] },
  organization = { 45. Jahrestagung der Gesellschaft f{"u}r
    Informatik,
      Cottbus (Germany), 2015-09-28 - 2015-10-02 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-207913 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/573834 },
}
```

[HF13]

[PDFBIB](#)

Hansen, N. and Franke, D., "Reverse Engineering des Windows Phone Process Execution Models" Bonn: Gesellschaft für Informatik e.V., 2013, vol. 12, pp. 83-86.

## Reverse Engineering des Windows Phone Process Execution Models

### Bibtex entry :

```
@inbook { HF13,
  author = { Hansen, Norman and Franke, Dominik },
  title = { Reverse Engineering des Windows Phone Process Execution
    Models },
  booktitle = { Informatiktage 2013 : smart life - dank Informatik ;
    fachwissenschaftlicher Informatik-Kongress 22. und 23.
    M{"a}rz 2013 B-IT Bonn-Aachen International Center for
    Information Technology, Bonn / Gesellschaft f{"u}r
    Informatik (Hrsg.). [Red.: Ludger Porada] },
  publisher = { Gesellschaft f{"u}r Informatik e.V. },
  pages = { 83-86 },
  volume = { 12 },
  series = { GI-Edition : lecture notes in informatics },
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year = { 2013 },
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typ = { PUB:(DE-HGF)8 },
reportid = { RWTH-CONV-204143 },
cin = { 120000 / 122810 },
url = { http://publications.rwth-aachen.de/record/226725 },
}
```

[BHK+12]

[PDFBIB](#)

Brauer, J., Hansen, R. R., Kowalewski, S., Larsen, K. G., and Olesen, M. C., "Adaptable Value-Set Analysis for Low-Level Code", in *Proc. 6th International Workshop on Systems Software Verification (SSV 2011) [Elektronische Ressource] / Hrsg.: Jörg Brauer ; Marco Roveri ; Hendrik Tews*, Wadern, 2012 in OASlcs - OpenAccess Series in Informatics, Schloss Dagstuhl - Leibniz-Zentrum für Informatik, pp. 32-43.

## Adaptable Value-Set Analysis for Low-Level Code

### Bibtex entry :

```
@inproceedings { BHK+12,
  author = { Brauer, J{\o}rg and Hansen, Rene Rydhof and Kowalewski,
    Stefan and Larsen, Kim G. and Olesen, Mads Chr. },
  title = { Adaptable Value-Set Analysis for Low-Level Code },
  booktitle = { 6th International Workshop on Systems Software
  Verification
    (SSV 2011) [Elektronische Ressource] / Hrsg.: J{\o}rg
    Brauer ; Marco Roveri ; Hendrik Tews },
  publisher = { Schloss Dagstuhl - Leibniz-Zentrum f{\u}r Informatik
  },
  pages = { 32-43 },
  series = { OASlcs - OpenAccess Series in Informatics },
  year = { 2012 },
  address = { Wadern },
  doi = { 10.4230/OASlcs.SSV.2011.32 },
  typ = { PUB:(DE-HGF)8 },
  reportid = { RWTH-CONV-198838 },
  cin = { 122810 / 120000 },
  url = { http://publications.rwth-aachen.de/record/128784 },
}
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Notiz: [BHK+12] ist KEINE Veröffentlichung von mir und wird fälschlicherweise aufgrund der eingeschränkten Konfigurierbarkeit des Bibliotheksplugins hier angezeigt.



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Last update: **2019/07/30 15:47**

