

# Norman Hansen, M.Sc. RWTH

## Kontakt

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## 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
```

```

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 },
}

```

[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 - Bände I-III : Tagung vom 25.-29. September 2017 in Chemnitz / Maximilian Eibl, Martin Gaedke (Hrsg.)*, Bonn, 2017 in GI-Edition : lecture notes in informatics. Proceedings, Gesellschaft für Informatik, 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 - B{\a}nde I-III : Tagung vom
25.-29.
  September 2017 in Chemnitz / Maximilian Eibl, Martin Gaedke
(Hrsg.) },
  publisher = { Gesellschaft f{"u}r Informatik },
  pages = { 1537-1549 },
  series = { GI-Edition : lecture notes in informatics. Proceedings
},
  year = { 2017 },
  address = { Bonn },
  organization = { 47. Jahrestagung der Gesellschaft f{"u}r
Informatik e.V.

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(GI), Chemnitz (Germany), 2017-09-25 - 2017-09-29 },
typ = { PUB:(DE-HGF)7 },
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url = { https://dl.gi.de/handle/20.500.12116/21 },
}
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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", *SAE technical paper*, vol. 2017-01-0004, 2017

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

### Bibtex entry :

```
@article { 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
  Development },
  journal = { SAE technical paper },
  publisher = { SAE International },
  volume = { 2017-01-0004 },
  year = { 2017 },
  address = { [Warrendale, PA] },
  issn = { 2688-3627 },
  organization = { SAE World Congress Experience, Detroit, Mich.
(USA),
  2017-04-04 - 2017-04-06 },
  doi = { 10.4271/2017-01-0004 },
  typ = { PUB:(DE-HGF)16 },
  reportid = { RWTH-CONV-236304 },
  cin = { 122810 / 120000 },
  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_2 },  
  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 },
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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 },
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International
Conference, Vienna (Austria), 2016-07-04 - 2016-07-08 },
doi = { 10.1007/978-3-319-41591-8_10 },
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reportid = { RWTH-2016-12037 },
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url = { http://publications.rwth-aachen.de/record/680854 },
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```

[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 },

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organization = { Modellbasierte Entwicklung eingebetteter Systeme,
Dagstuhl
    (Germany), 2016-03-30 - 2016-04-01 },
typ = { PUB:(DE-HGF)8 },
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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", in *Proc. Informatik 2015 : Tagung vom 28. September - 02. Oktober 2015 in Cottbus / Douglas W. Cunningham ... (Hrsg.)*, [Bonn], 2015 in GI-Edition : lecture notes in informatics, Ges. für Informatik, pp. 1649-1660.

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

### Bibtex entry :

```

@inproceedings { 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 },
    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 },
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[HF13]

[PDFBIB](#)

Hansen, N. and Franke, D., "Reverse Engineering des Windows Phone Process Execution Models", in *Proc. Informatiktage 2013 : smart life - dank Informatik ; fachwissenschaftlicher Informatik-Kongress 22. und 23. März 2013 B-IT Bonn-Aachen International Center for Information Technology, Bonn / Gesellschaft für Informatik (Hrsg.)*. [Red.: Ludger Porada], Bonn, 2013 in GI-Edition : lecture notes in informatics, Gesellschaft für Informatik e.V., pp. 83-86.

# Reverse Engineering des Windows Phone Process Execution Models

## Bibtex entry :

```
@inproceedings { 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] },
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  pages = { 83-86 },
  series = { GI-Edition : lecture notes in informatics },
  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 },
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[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 OASICS - 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 = { OASICS - OpenAccess Series in Informatics },
  year = { 2012 },
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address = { Wadern },
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cin = { 122810 / 120000 },
url = { http://publications.rwth-aachen.de/record/128784 },
}
```

Notiz: [BHK+12] ist KEINE Veröffentlichung von mir und wird fälschlicherweise aufgrund der eingeschränkten Konfigurierbarkeit des Bibliotheksplugins hier angezeigt.

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