

# Gestaltung wissenschaftlicher Poster

Andreas Schoknecht

INSTITUT FÜR ANGEWANDTE INFORMATIK UND FORMALE BESCHREIBUNGSVERFAHREN (AIFB)



**SEMBIS**

2. Studierendenkonferenz

- Poster dienen zur **Vorstellung der eigenen Arbeit**
  - Ermöglichen die Darstellung von **mehr Details** als in einem Vortrag
  - Möglichkeit für **tieferen Diskussionsaustausch** zwischen Autor und Lesern als ein Vortrag oder Paper

## ■ Charakteristika

- Illustriertes Abstract
- Beschreibt einige wenige, wichtige Punkte
- Versucht das Interesse der Leser zu wecken

Learn-Research-Apply: University for Beginners  
*A method toolbox to establish motivated studying in university education*

### Abstract

Despite economy demand, there is a lack of university graduates. To attract both prospective and first-year students to pursue an academic education, universities have to provide a motivating study environment. We propose an integrated teaching concept which does not only consider theoretical foundations as defined in the curriculum (Learn), but also embraces the fields of science (Research) and professional practice (Apply). To this avail, a fictitious company setting provides a generic framework to derive appropriate use cases in order to enable a problem-oriented and holistic learning approach. This way, students directly experience the relevance and applicability of theoretical knowledge which in turn raises motivation. At the same time, we develop a platform to support the conduction of university courses according to our concept. Essential part of this platform is a method toolbox which serves as public collection of modular didactic components which can be used by lecturers to construct or at least enhance courses. Based on the platform integration, the didactic components like Serious Games, Web Quizzes or roleplay will not only be described but also instantiated together with an evaluation to allow for cyclic and continuous improvement.



**REPOSITORY PLATFORM FOR MOTIVATING EDUCATION**  
An approach to improve creation and execution of cutting-edge university courses

Despite economy demand, there is a lack of university graduates. To attract both prospective and first-year students to pursue an academic education, universities have to provide a motivating study environment. We propose an integrated teaching concept which does not only consider theoretical foundations as defined in the curriculum (Learn), but also embraces the fields of science (Research) and professional practice (Apply). To this avail, a fictitious company setting provides a generic framework to derive appropriate use cases in order to enable a problem-oriented and holistic learning approach. This way, students directly experience the relevance and applicability of theoretical knowledge which in turn raises motivation. We develop a platform to support the conduction and integration of modern university courses according to our concept. Essential part of this platform is a repository of didactic and methodical components, service functionalities and administrative features. With the help of a course modeler, lecturers can construct and customize the desired repository elements. Based on the platform integration, the selected elements can be instantiated with each instantiation to allow for cyclic and continuous improvement.

**Architecture of an Education Repository Platform**

**Repository**

- The service repository offers:
  - Based on the three main areas:
    - Didactic method: Globally distributed, collaborative working and communication between participants as well as other lecturers.
    - Possibility of creating digital response quickly (Quiz & Check)
    - Competition of various repository items
    - Creation, alignment and evaluation of learning items.
  - Additional services: BPM software (Process) for documentation and presentation of course realizations.

**Example learning item: Social BPM Lab**

- Collaborative working in small teams under supervision of leading staff. Role play
- Teaching content: Business Process Modeling with Petri Nets
- Use case: Designing processes for Global Courses (in different scenarios)
- Exam Item

KIT - University of the State of Baden-Württemberg and National Research Center of the Helmholtz Association  
www.kit.edu

# Hinweise – Inhalt

- Ein wissenschaftliches Poster sollte folgende Fragen beantworten:

**Warum ist meine Arbeit  
interessant/relevant?**

**Was sind meine  
Ergebnisse?**

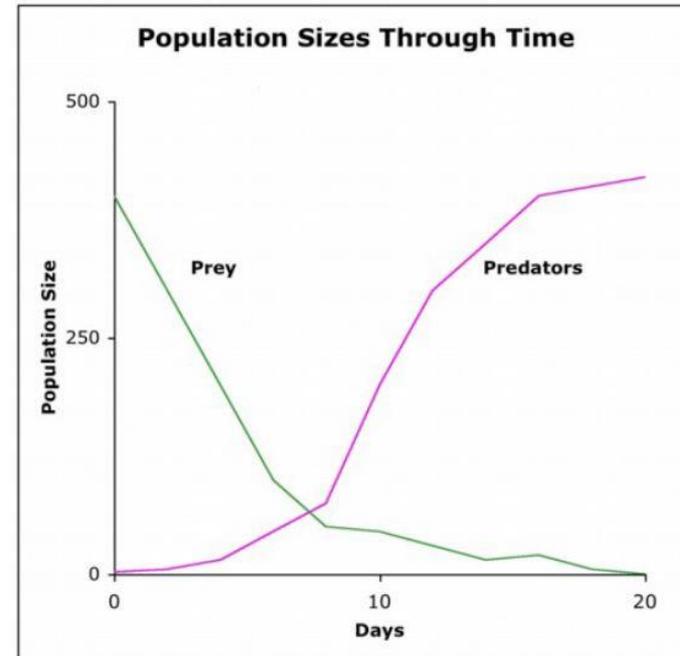
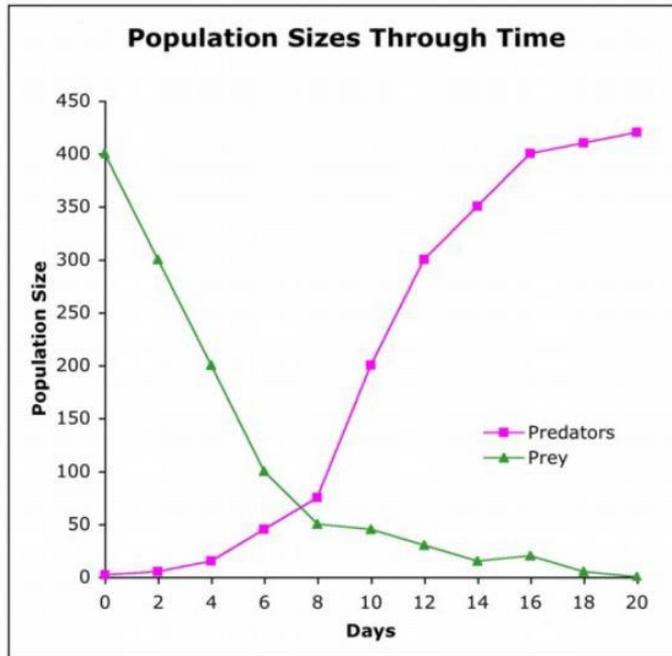
**Was füge ich Neues  
dem Stand der  
Forschung hinzu?**

**Was sind meine  
Schlussfolgerungen?  
Was empfehle ich?**

**Welche Methoden  
setze ich ein?**

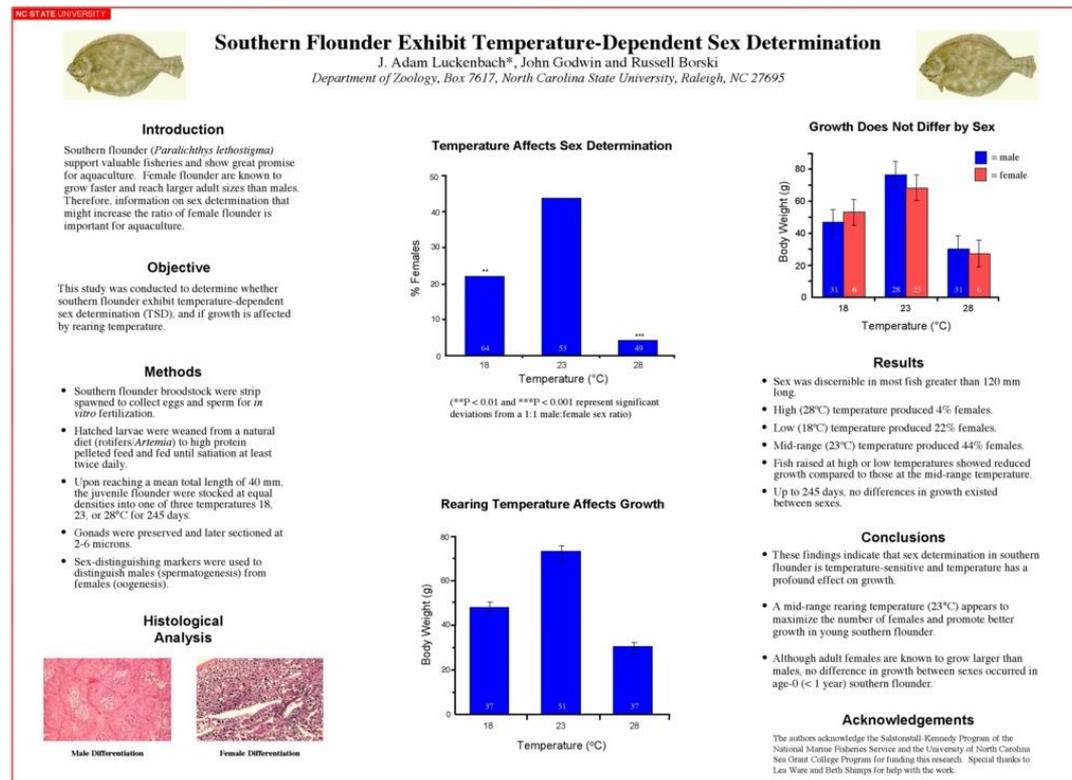
# Hinweise – Gestaltung (1)

- Generell Poster visuelles Mittel zur Darstellung von Informationen
- Auf adäquate Qualität von Bildern, Diagrammen, etc. achten
- Einfache, effektive Darstellung von Daten



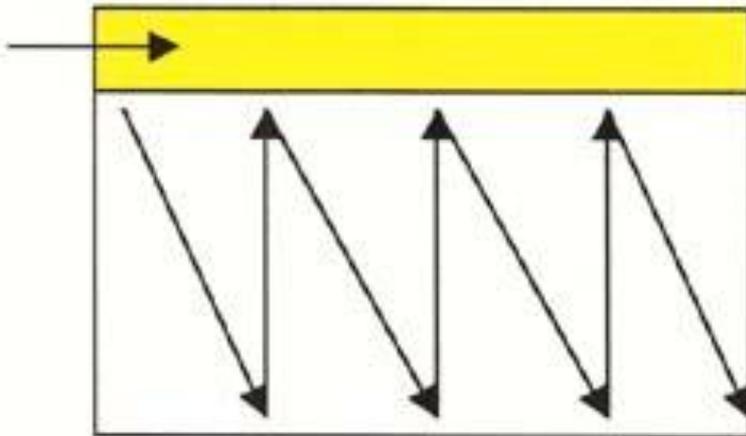
# Hinweise – Gestaltung (2)

- Zumeist kleine Blöcke unterstützender Text
- Keine „Textwüsten“, sondern Freiraum zwischen Textpassagen
- Abstand zwischen Posterelementen wichtig für Übersicht



## Hinweise – Gestaltung (3)

- Gliederung des Posters offensichtlich darstellen
- Poster für das Auge leicht erfassbar gestalten
- Logischer Aufbau / „Lesefluss“ erkennbar

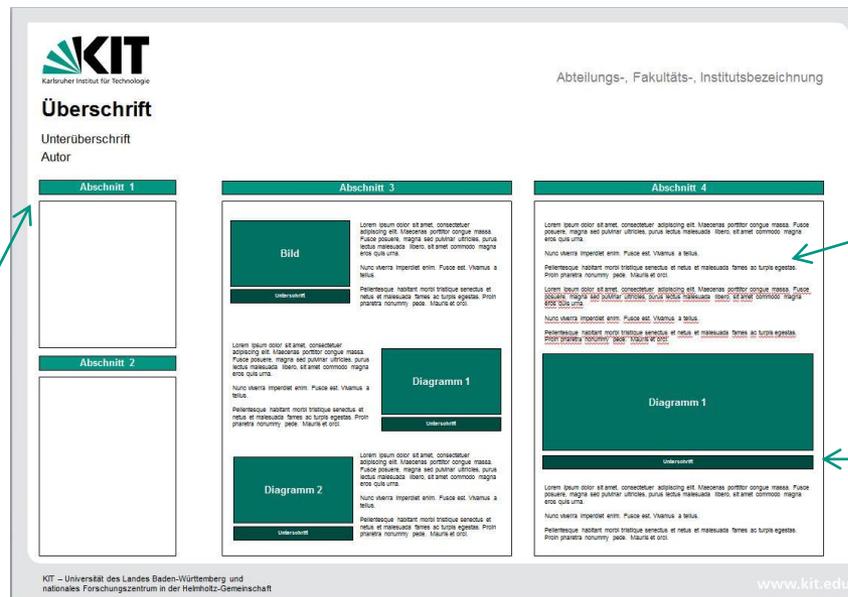


# Hinweise – Gestaltung (4)

## ■ Textgestaltung

- Leicht lesbare Textart wählen (Schriftarten ohne Serifen besser)
- Große Überschriften und Postertitel
- Gleiche Größe und Stil in Textblöcken, Überschriften, etc.
- Textausrichtung links oder Trennzeichen verwenden, sonst große Abstände zwischen Wörtern

Überschrift: 40 pt



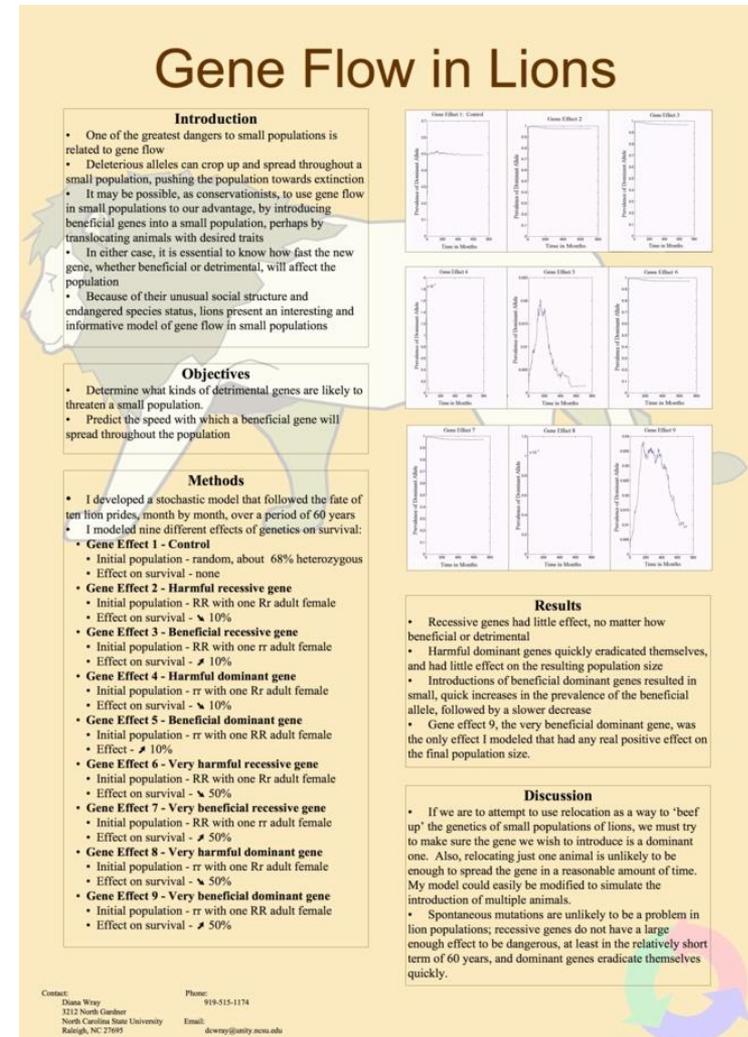
Text: 24 pt

Bildunterschrift: 20 pt

# Hinweise – Gestaltung (5)

## ■ Verschiedenes

- Vorsichtiger Einsatz von Farbe
- Muster, Bilder im Hintergrund können ablenken bzw. das Lesen erschweren
- Attraktive Grafiken
- Aufzählungen oftmals leichter lesbar als Fließtext



# Bewertungskriterien (1)

## ■ Darstellung

- Erweckt Aufmerksamkeit eines Betrachters
- Kann in angemessenem Abstand gelesen werden
- Schlüssiger Aufbau und leichter Lesefluss
- Sinnvoller Einsatz von Grafiken
- Ansprechendes Posterdesign



## ■ Inhalt

- Klar und leicht verständlich
- Angesprochene Fragestellung ist deutlich erkennbar
- Genügend Details vorhanden, um den Inhalt zu verstehen
- Keine überflüssigen Details vorhanden
- Schlussfolgerungen klar beschrieben

■ Jeder Punkt wird auf einer Skala von 1 bis 5 bewertet

# Vorgehen (1)

- Gedanken machen über Leser des Posters
  - Welche Fragen der Leser sollen durch das Poster geklärt werden?
  - Welches Vorwissen haben die Leser?
  - Welche Konzepte, Begriffe, etc. müssen erläutert werden?
  - Welche Fragen können möglicherweise gestellt werden?

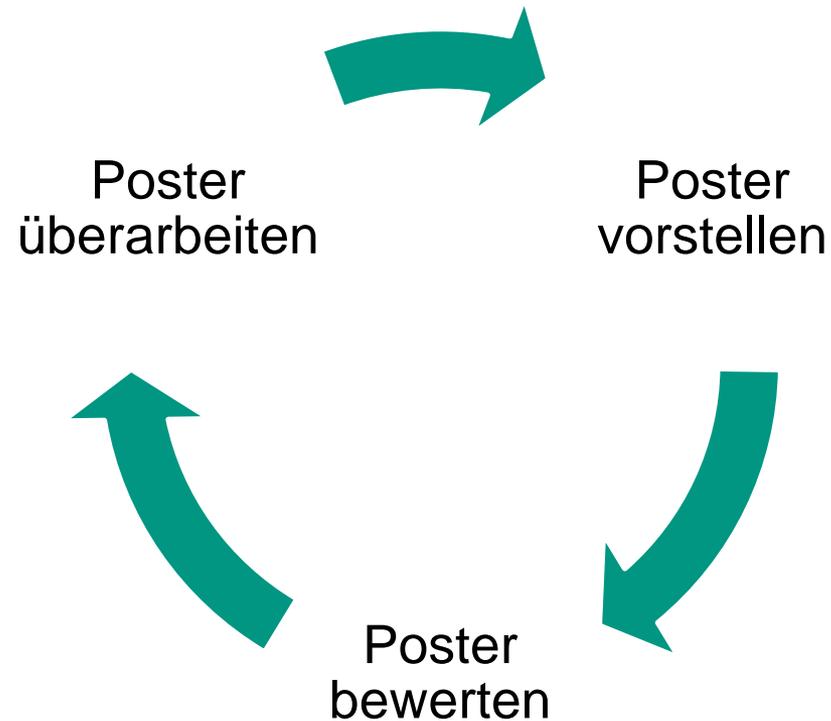


<http://www.presentationmagazine.com/six-strategies-to-encourage-audience-questions-12680.htm>



## Vorgehen (3)

### ■ Iterativer Entwurfsprozess



# Beispiele (1)

## Template A0 - 119x84 cm for "scientific poster" – header with font Mundo Sans or Arial regular 80 pt

The name of the authors 28pt regular

### Conclusions first 44 pt bold

Always put the most important part – your conclusions – first! Place your conclusions in the upper left hand corner of your poster. Prepare your material from the reader's perspective. What was done, by who and your conclusion has to be understood within a couple of second's reading! Use active voice when writing the text.

We recommend that you use up to 2000 characters including spaces, text size: 34 pt



Use pictures or illustrations! 28pt regular

### Introduction

Posters are primarily visual presentations. Your poster should be dominated by self-explanatory illustrations such as graphs and pictures while the amount of text should be kept to the minimum.

### Your aim

Your poster is an advertisement for your research and as such it needs to be eye-catching and straight to the point. You only have seconds, or at best a few minutes to attract the attention of the visitor to a poster session. Keep your message short and clear

### Your message

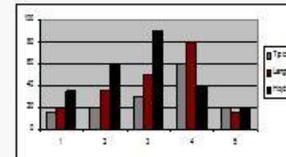
Keep your message clear and your text concise. Decide what is relevant for this poster and try to get your message across to your target group.

### Layout, photos and print

Contact [Mediabyrån](#) at University Library for help with layout and image enhancement. For printouts and professional photographers contact [Bildmakarna](#). For more information: [www.bildmakarna.kib.ki.se](http://www.bildmakarna.kib.ki.se)



Always write a descriptive caption. 28pt regular



Use diagrams to illustrate results. 28pt regular

### Tips:

The best font for text blocks that are as short as they should be on a poster is a Sans Serif typeface family. Therefore, use sans serif fonts such as Arial or Mundo sans rather than serif fonts like Times or Courier.

AVOID CAPITAL LETTERS IN TEXTS THAT ARE LONGER THAN ONE LINE, SINCE THEY ARE MORE DIFFICULT TO READ.

### Handouts

If you succeed in getting the reader's attention, provide her/him with more detailed information in the form of handouts or printed articles. Include references on your handout instead of your poster.

It is always nice to put in a picture and write some few short notes of what's going on in the future. Put handouts, business cards, nearby - on a table or in an envelope hung with the poster.



Karolinska Institutet (24pt bold/regular)

First Name: Surname

Title • Section

Visiting address • Post address

E-mail: [Fornamn.efternamn@ki.se](mailto:Fornamn.efternamn@ki.se)

Telephone: 08-524 863 29, Fax: 08-000 000 00

Web site: [medlabiran.kib.ki.se](http://medlabiran.kib.ki.se)



Sehr gute Vorlage für wissenschaftliche Poster

[http://bildmakarna.kib.ki.se/posters/tips/templates\\_en.html](http://bildmakarna.kib.ki.se/posters/tips/templates_en.html)

# Beispiele (2)

## Morphological Image Recognition of Deep Water Reef Corals



Original color image

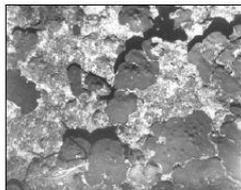
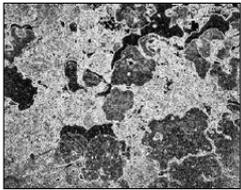
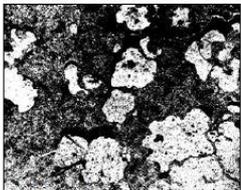


Image Converted to grayscale



Morphological Gradient (MG) intensity "texture" patterns



MG threshold with subtracted light and dark regions

Jeffrey W. Kaeli  
Virginia Tech

Hanumant Singh  
Woods Hole Oceanographic Institution

Roy Armstrong  
University of Puerto Rico

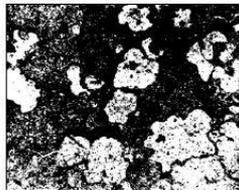
### Introduction

Deep water coral reefs (30-100m) could shelter commercial fish stocks and provide coral larvae for recovering shallow reefs. Deep corals appear healthier than shallow corals, but depth has restricted their study. Current quantitative study methods involve scattering random points across images and visually identifying substrates.

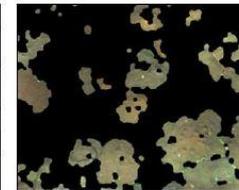
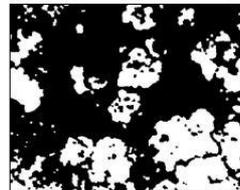
*Montastrea annularis* complex is a major reef building coral representing as much as 75% of the coral cover in some areas. Its dominance and smooth texture make it an ideal candidate for image processing. The goal of this research was to develop an algorithm to segment out colonies of the *M. annularis* complex and calculate percent coverage values

### Methods

Images taken by the SeaBED Autonomous Underwater Vehicle (AUV) off the Hind Bank, U.S. Virgin Islands, were analyzed with the existing random point method and the algorithm. A description of the algorithm's recognition process is shown to the left and below.



An open-close Alternating Sequence Filter (ASF) removes salt-and-pepper noise. Each successive iteration removes particles of a larger diameter. One, five, and fifteen iterations are shown.



Original image superimposed over recognized areas

### Results

Algorithm accuracy was measured using the mean of the first 15 ASF iterations, and improved exponentially with actual percent cover (Figure 1). Percent cover values generated by the algorithm (Figure 2) are competitive with those obtained using the random point method.

### Discussion

Degraded coral is compensated for by misidentified substrate in the percent cover calculations. This compensation explains why error remains high while percent cover remains comparable to the random point method.

This algorithm is basic and has room for more specialized recognition strategies. Future work will involve identification of multiple species with an ultimate goal of calculating diversity and species richness.

### Acknowledgments

This research was made possible by the Guest Student Program at Woods Hole Oceanographic Institution (WHOI) and the continued collaboration between WHOI and the University of Puerto Rico

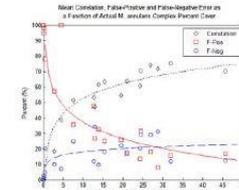


Figure 1. Mean correlation, false-positive and false-negative error

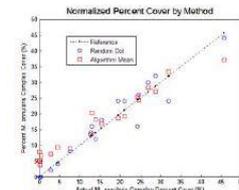


Figure 2. Algorithm mean and random point method normalized against actual percent cover

Nicht so gut

- Unklare Bildzugehörigkeit
- Paper-artiger Textteil

<http://www.writing.engr.psu.edu/samples/poster7.pdf>

# Aufgabe im Folgenden

- Bewerten Sie die Beispiel-Poster mit den vorgestellten Bewertungskriterien
- Anschließend Diskussion der Ergebnisse

### Can Suburban Greenways Provide High Quality Bird Habitat?

George R. Hees | NC State University | Department of Forestry & Environmental Resources | Raleigh NC 2765-8002 USA | george\_hees@ncsu.edu  
Christopher E. Moorman, Justin H. Mason, Kristina E. Stedler, Salina K. Kohler | NC State University | Department of Forestry & Environmental Resources  
www4.ncsu.edu/~grhees/GreenwaysforWildlife

#### Birds of Conservation Concern in Decline

- Many bird species of conservation concern – including neotropical migrants, insectivores, and forest-interior specialists – decline with increasing human development
- Greenways might mitigate this effect
- Habitat patch size, vegetation composition, and structure, and landscape context are key factors
- Manatees are lacking for designing and managing suburban greenways as high quality habitat

#### Objective: Greenways for the Birds

- Historical land development-sensitive forest birds are affected by adjacent corridor width
- adjacent development intensity
- vegetation composition & structure
- Develop recommendations for greenway designers and planners

#### Study Design & Independent Variables

- Sampled 34 ~ 300m corridors in Raleigh & Cary, NC, USA
- Sampled range of forested corridor widths (20 - 1200m)
- Adjacent density (low density residential – office/commercial)
- Additional measures
  - Vegetation composition & structure to corridor
  - Lead cover to 300m x 300m adjacent to corridor (contrast)
  - Measured richness & abundance of breeding birds
  - Neotropical migrant birds during stopovers
  - Measured nest predation

#### Breeding Birds of Concern More Common in Wider Greenways with Less Managed Area Surrounded by More Forest Canopy

- Richness, 50m patch counts at center of corridor
- Richness & area during breeding season

#### Nest Predators Less Common in Wider Greenways with Narrower Paths

- Five baited cover stations along each greenway segment
- Observed for 4 nights each

#### Significant Predictors for Predator Abundance

Greenway: Adjacent Landscapes

- (-) Corridor width
- (+) Trail width
- (+) Mature forest
- (+) Grassed cover
- (-) Use cover

#### Greenways for Development-Sensitive Forest Birds Might Conflict with Intense Recreational Use

People & Managers Prefer ... Forest Birds Prefer ...

### Will Manatees Still Exist in 2100? Effect of Cold Winters and Watercraft Accidents

Jun Yoshizaki, Biomathematics Program, North Carolina State University, Raleigh, NC 27695  
Email: jyoshizaki@ncsu.edu

#### 1. Introduction

In Florida, the populations of West Indian Manatees, listed as endangered species in 1967, appear to be growing in recent years. At the same time, the total number of manatee deaths is increasing rapidly. Therefore, it has become more important to evaluate the long-term viability of the population. I hypothesized that cold stress due to cold winters and accidents with watercrafts cause additional mortality, and examined the population trends during the next 100 years.

#### 2. Objectives

- Simulate manatee population trends during the next 100 years under the assumptions that there is additional mortality due to
  - cold stress only (temperature effect)
  - accidents with watercrafts only (boat effect)
  - both cold stress and accidents (combined effect)
- Investigate the relationship between the mean number of deaths due to watercraft accidents in each year and the probability of extinction within the next 100 years

#### 3. Methods

- Model type: modified age based matrix model of female manatees
- Initial population size = 1600
- Mean boat collision deaths / year = 68 individuals
- Draw minimum temperature and the number of boat collision deaths in each year randomly from normal distribution
- Simulated 100 times for each model

#### 4. Results: Graphs of Population Trends

Model 1: No effect (natural mortality only)

Without additional mortality, the manatee population keeps growing

Model 2: Temperature effect

Even 100 years of consecutive cold winters do not cause the manatee population to decline

Model 3: Boat effect

A mean of 68 boat collision deaths / year causes slower population growth, but the population size still increases

Model 4: Combined effect

Assuming randomly occurring cold winters and a mean of 68 boat collision deaths / year, population growth becomes even slower, but the population size still increases

**BUT ...**

If the mean number of boat collision deaths / year becomes 72, there is a chance that the population will become extinct

So, what is the relationship between mean boat collision deaths and extinction risk?

Extinction Risk = # of simulations with extinction event / total # of simulations

The extinction risk increases rapidly when the mean accident deaths / year exceeds 72

#### 5. Discussion

- Cold winters did not cause the manatee population to decline. This result can be expected because there are thermal refuges during winter (e.g. power plant warm-water discharges) therefore, the mortality due to cold winters was very low. Developing a model that includes the effect of winter refuge loss could be interesting in future studies.
- Current average boat collision deaths (i.e. 68 deaths / year) slowed population growth however, did not cause the manatee population to decline.
- Population growth became even slower when the effects were combined (i.e. randomly occurring cold winters and mean boat collision deaths / year = 68) however, the population was still growing.
- Increase in the mean boat collision deaths (even by a small number) could be a serious problem. For a mean = 78, the extinction probability became 1. The records show that the deaths due to accidents increased rapidly during last 5 years, therefore understanding the current situation of boat collision deaths is important to maintain manatee populations.

### REPOSITORY PLATFORM FOR MOTIVATING EDUCATION

An approach to improve creation and execution of cutting-edge university courses

Canonica, Tamir, Citat, Murat, Lehner, Jonas, Oberweis, Andreas, Schönbert, Andreas, Ullrich, Meike  
Karlsruhe Institute of Technology (KIT), Institute AIFB, 76129 Karlsruhe, Germany, first\_name.surname@kit.edu

Institute for Applied Informatics and Formal Description Methods (AIFB)

Despite economy demand, there is a lack of university graduates. To attract both prospective and first-year students to pursue an academic education, universities have to provide a motivating study environment. We propose an integrated teaching concept which does not only consider theoretical foundations as defined in the curriculum (Learn), but also embraces the fields of science (Research) and professional practice (Apply). To this avail, a fictitious company setting provides a generic framework to derive appropriate case studies in order to enable a problem-oriented and holistic learning approach. This way, students directly experience the relevance and applicability of theoretical knowledge which in turn raises motivation. We develop a platform to support the modeling and instantiation of modern university courses according to our concept. Essential part of this platform is a repository of didactical and methodical components, service functionalities and administration features. With the help of a course modeler, lecturers can combine and orchestrate the desired repository elements. Based on the platform integration, the selected elements can be evaluated with each instantiation to allow for cyclic and continuous improvement.

#### Architecture of an Education Repository Platform

#### Repositories

- The service repository offers functionalities for collaboration and communication between participants as well as other software.
- The didactic repository contains methods and materials to construct university courses. It also offers finalized lectures (learning items).
- The administration repository provides general course management functionalities like user subscriptions or course evaluations.

#### Course modeling

- Based on the three repositories lecturers can orchestrate their own courses.
- Possibility of creating course instances visually (Drag & Drop).
- Composition of various repository items.
- Creation, alignment and evaluation of learning items.

#### Example learning item: Social BPM Lab

- Didactic method: Globally distributed, collaborative working in small teams under supervision of teaching staff. Role play.
- Teaching content: Business Process Modeling with Petri Nets.
- Use case: Designing processes for Global Creshees Inc. (fictitious company).
- Exam: None.
- Additional services: BPM software (Horus), Wiki for documentation and presentation, Skype.

Project homepage: <http://ifa.aifb.kit.edu> This project is funded by the Ministry of Science, Research and the Arts Baden-Württemberg

KIT - University of the State of Baden-Wuerttemberg and National Research Center of the Helmholtz Association [www.kit.edu](http://www.kit.edu)

## Weitere Informationen

- <http://www.ncsu.edu/project/posters/index.html>
- <http://www.owl.net.rice.edu/~cainproj/designing.html>
- <http://www.writing.engr.psu.edu/posters.html>
  
- <http://colinpurrington.com/tips/academic/posterdesign>
  - Sehr gute und ausführliche Beschreibung
  - Hilfreiche Links
  - DOs and DON'Ts

# Aufgabe bis 19.06.2015

- Erstellung eines Posters zum Seminarthema
- Poster sollten bis 19.6. an mich geschickt werden, ich werde sie dann ausdrucken (andreas.schoknecht@kit.edu)
- Vorstellung des Posters am 23.06.2015
  
- Postervorlage des KIT über Konferenzseite verfügbar
- Generell auch eigenes Design möglich

