Automatizacija ponovnog korištenja u razvoju Web aplikacija

Josip Maras

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Beyond the Web: Excavating the Real World Via Mosaic

THE MERCURY PROJECT.

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- Michael Mascha, Assistant Professor, Anthropology and
- Steven Gentner, M.S. Candidate, Computer Science
- Juergen Rossman, Graduate Student, University of Dortmund, Germany
- Nick Rothenberg, PhD Candidate, Visual Anthropology
- Carl Sutter, Senior Programmer/Analyst, Center for Scholarly Technology
- Jeff Wiegley, PhD Candidate, Computer Science

University of Southern California. Los Angeles, CA.

(To appear in the Second International WWW Conference, Chicago, IL, Oct 17-21, 1994.)

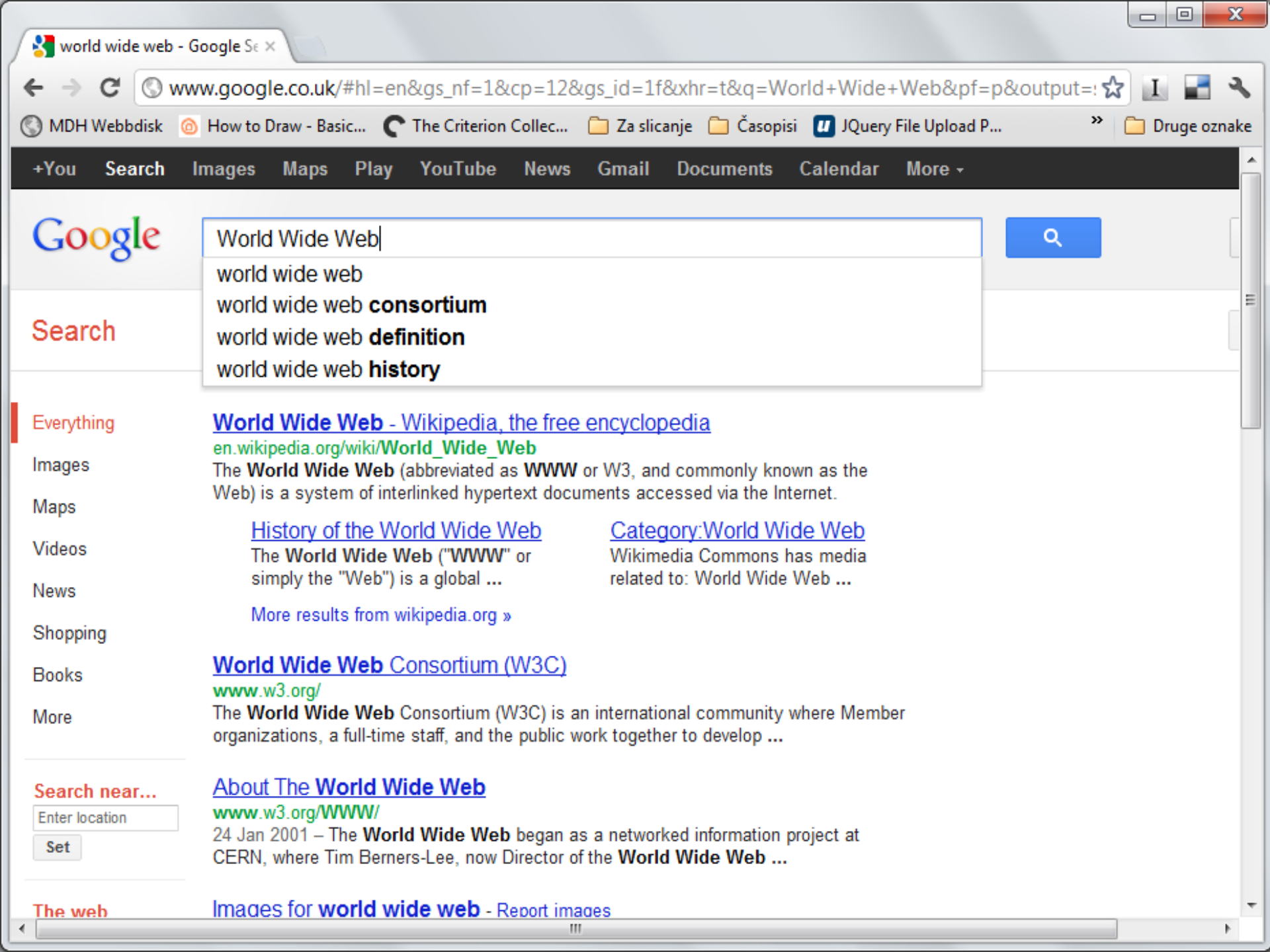
Abstract

This paper describes a Mosaic server that allows users to "leave the Web" and interact with the real world. An interdisciplinary team of anthropologists, computer scientists and electrical engineers collaborated on the project, designing a system which consists of a robot arm fitted with a CCD camera and a pneumatic system. By clicking on an ISMAP control panel image, the operator of the robot directs the camera to move vertically or horizontally in order to obtain a desired position and image. The robot is located over a dry-earth surface allowing users to direct short bursts of compressed air onto the surface using the pneumatic system. Thus robot operators can "excavate" regions within the environment by positioning the arm, delivering a burst of air, and viewing the image of the newly cleared region. This paper describes the system in detail, addressing critical issues such as robot interface, security measures, user authentication, and interface design. We see this project as a feasibility study for a broad range of WWW applications.

Goals of the Project

WWW and Mosaic[1]-like servers provide a multi-media interface that spans all major platforms. Thousands of sites have been set up in the past year. Our goal with this project was to provide public access to a teleoperated robot, thus allowing users to reach beyond the digital boundaries of the WWW.

Such a system should be robust as it must operate 24 hours a day and it should be low in cost (we had an extremely limited budget). It is worth noting that the manufacturing industry uses the same criteria to evaluate robots for production. Thus our experience with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Set
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World Wide Web - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/World_Wide_Web
The World Wide Web (abbreviated as WWW or W3, and commonly known as the Web) is a system of interlinked hypertext documents accessed via the Internet.
History of the World Wide Web
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Mark Z

Josip Maras

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Harvard · Facebook
13,084,677 subscribers

Mark Žabkar
1 mutual friend

Pages

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Public Figure
67,453 like this · 1,066 talking about this

Mark Zuckenberg
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45,848 like this · 1,699 talking about this

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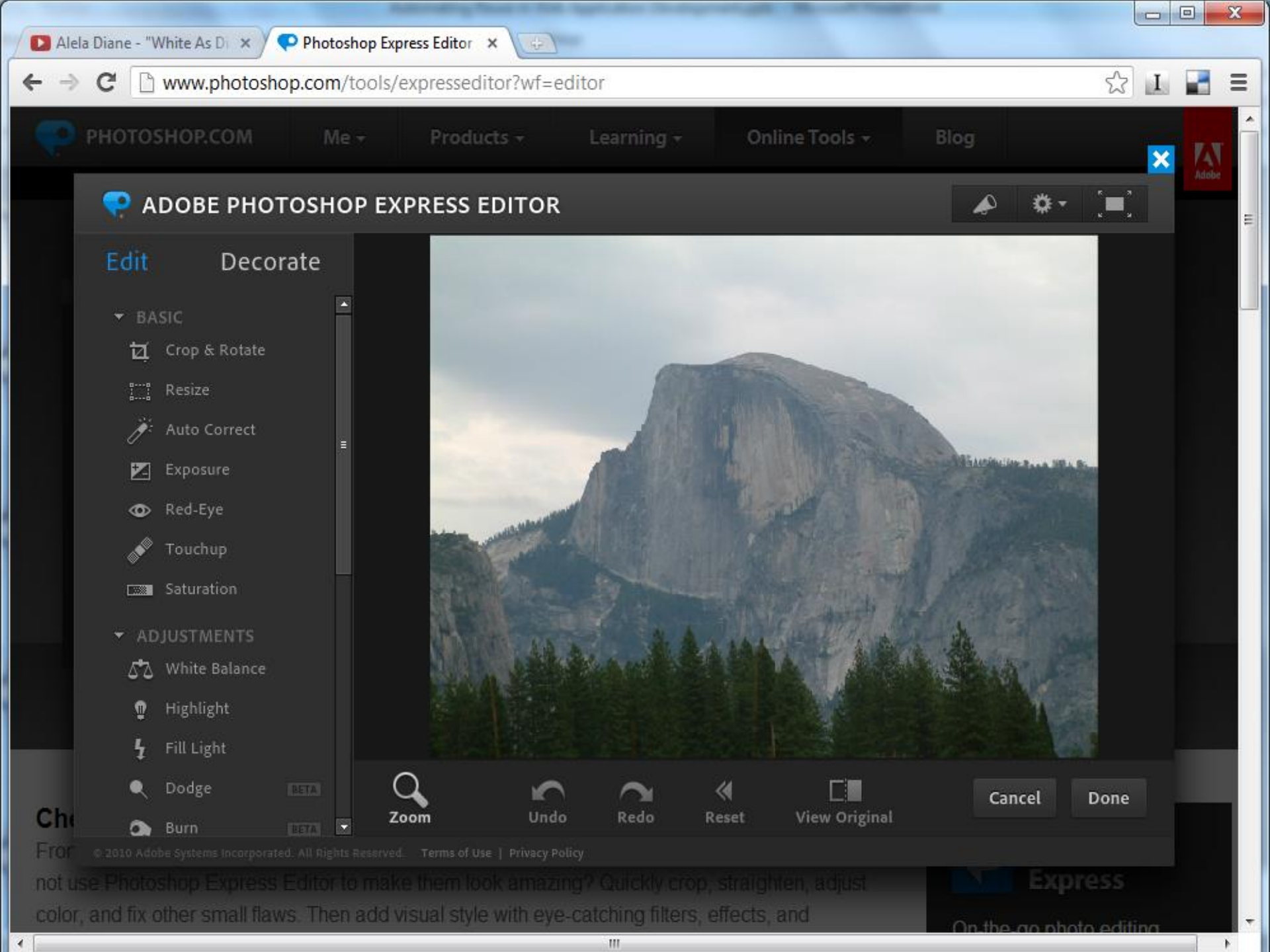
2012
2011
2010

Do you know Mark? Subscribe to Mark to get his public posts in your news feed.

Chat (Offline)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View Original
Cancel
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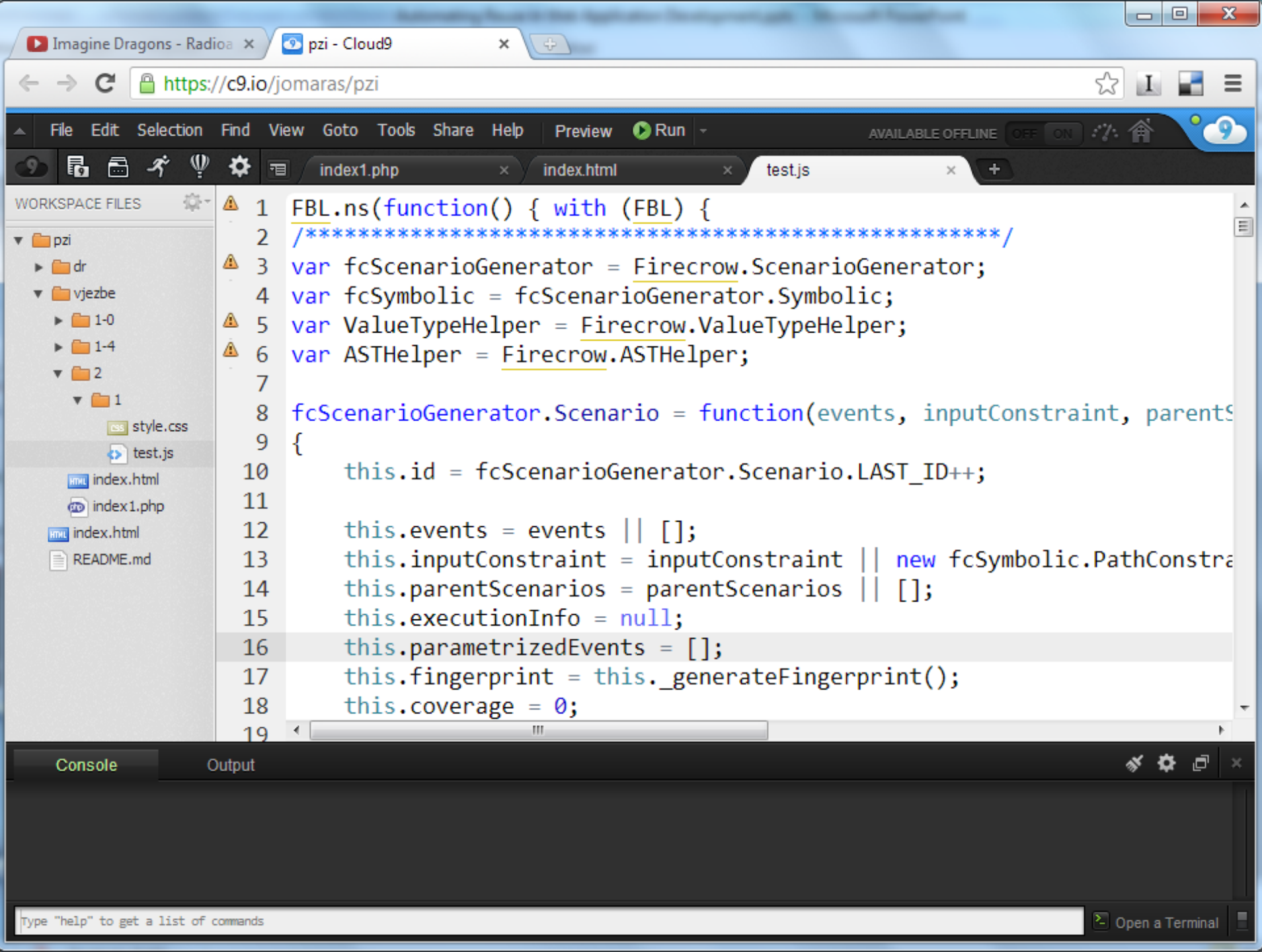
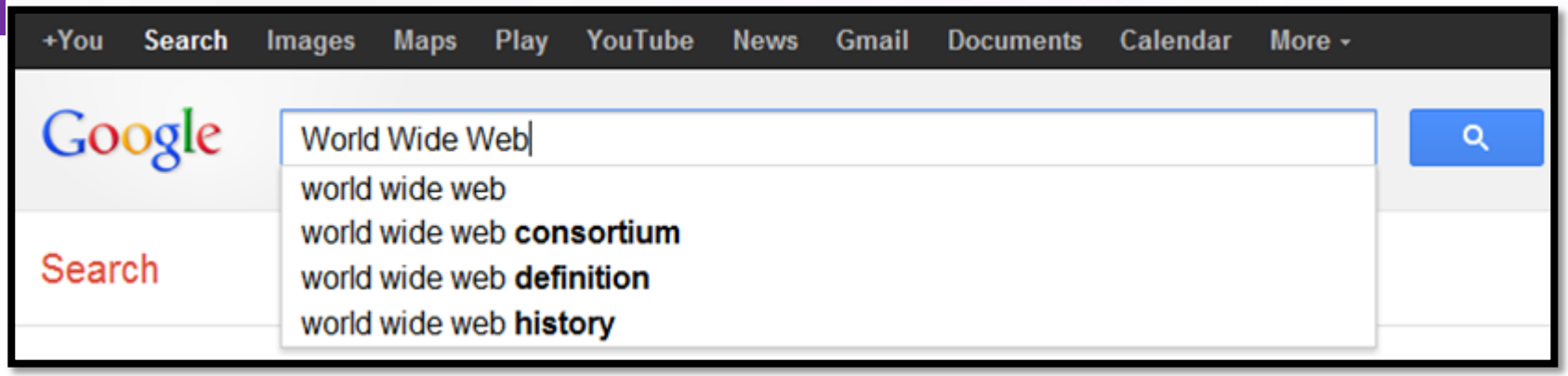
not use Photoshop Express Editor to make them look amazing? Quickly crop, straighten, adjust
color, and fix other small flaws. Then add visual style with eye-catching filters, effects, and

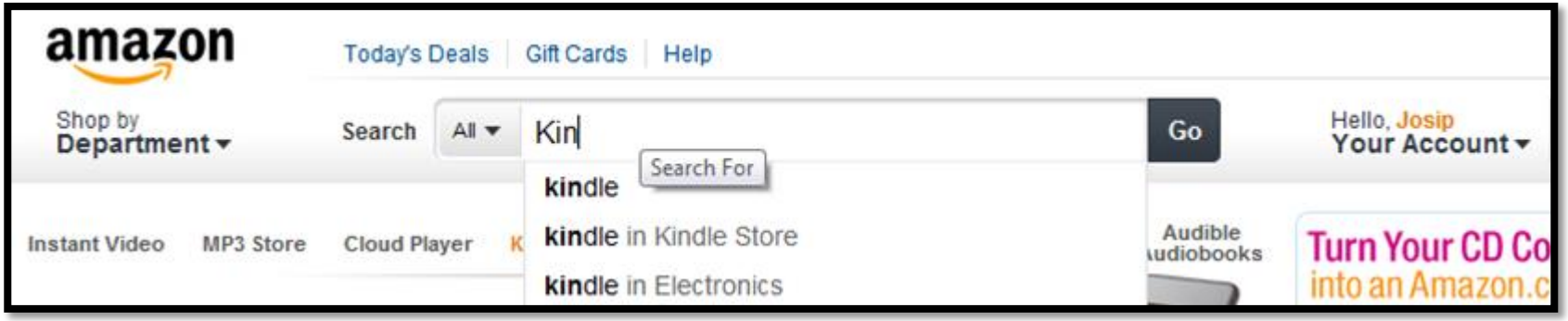

Imagine Dragons - Radioa
pzi - Cloud9
https://c9.io/jomaras/pzi
File Edit Selection Find View Goto Tools Share Help Preview Run
AVAILABLE OFFLINE OFF ON
index1.php
index.html
test.js
WORKSPACE FILES
pzi
dr
vjezbe
1-0
1-4
2
1
style.css
test.js
index.html
index1.php
index.html
README.md
1 FBL.ns(function() { with (FBL) {
2 /*****/
3 var fcScenarioGenerator = Firecrow.ScenarioGenerator;
4 var fcSymbolic = fcScenarioGenerator.Symbolic;
5 var ValueTypeHelper = Firecrow.ValueTypeHelper;
6 var ASTHelper = Firecrow.ASTHelper;
7
8 fcScenarioGenerator.Scenario = function(events, inputConstraint, parentS
9 {
10 this.id = fcScenarioGenerator.Scenario.LAST_ID++;
11
12 this.events = events || [];
13 this.inputConstraint = inputConstraint || new fcSymbolic.PathConstra
14 this.parentScenarios = parentScenarios || [];
15 this.executionInfo = null;
16 this.parametrizedEvents = [];
17 this.fingerprint = this._generateFingerprint();
18 this.coverage = 0;
19
Console
Output
Type "help" to get a list of commands
Open a Terminal

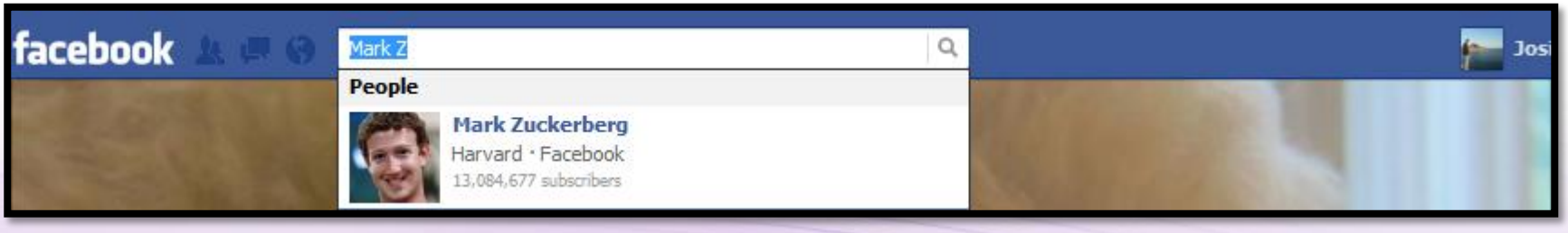
Web aplikacije

- Jedna od najraširenijih aplikacijskih domena
- Nesklad između rasprostranjenosti i zrelosti alata/metoda za razvoj
- Nedostatak alata/metoda za:
  - razvoj
  - analizu
  - ponovno korištenje

Potencijal za ponovno korištenje







Cilj istraživanja

Kako automatizirati ponovno korištenje u razvoju klijentskih web aplikacija?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HOME
FEATURES
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Hot-air Balloon
Hot-air Balloon
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FEATURED PROJECTS

All design logo photo print Web

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Pellentesque habitant morbi tristique

DONEC

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor

ALIQUAM

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor

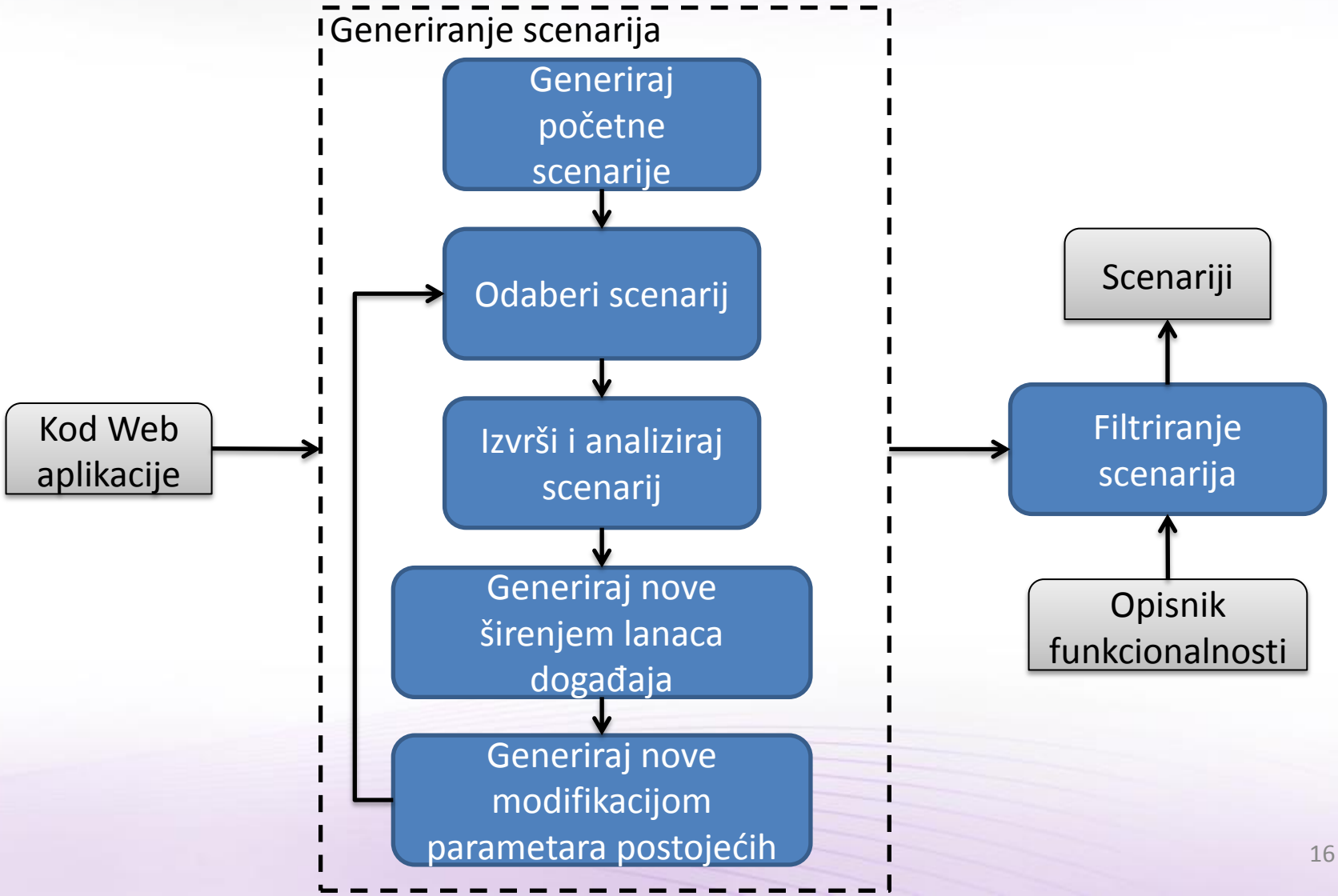
Problemi

- Kako identificirati podskup izvornog koda aplikacije koji implementira određenu funkcionalnost
- Kako umetnuti izvorni kod u već postojeću aplikaciju, bez uvođenja pogrešaka
- Kako automatski generirati nizove korisničkih akcija koje pokreću određenu funkcionalnost.

Automatsko generiranje scenarija*

* Generating feature usage scenarios in Client-side Web Applications, ICWE’13

Automatsko generiranje scenarija



Evaluacija

- Generiranje scenarija za testne web aplikacije
  - 40% prosječni rast pokrivenosti koda u usporedbi s jednostavnim učitavanjem aplikacije
- Usporedba sa „state-of-the-art” alatom
  - Rast 0 – 9% (prosjek 3.1%)
- „Case study aplikacija” s jasnim funkcionalnostima
  - Uspješna identifikacija scenarija

Identificiranje koda funkcionalnosti*

*Identifying Code Of Individual Features in Client-side Web Applications, TSE vol.39 no.12 2013

Identificiranje koda funkcionalnosti

- S korisničke perspektive, relativno je jednostavno razlikovati funkcionalnosti
- Međutim, identifikacija implementacije je teška
  - kod izmiješan s nebitnim kodom
  - ne postoji jednostavno mapiranje između aplikacije i koda

Manifestacije funkcionalnosti

- Korisnička sučelja

- Funkcionalnosti se manifestiraju:
  - promjenama strukture i prezentacije
  - komunikacijom sa serverskom stranom

Proces Identifikacije

- Analiza izvršavanja aplikacije
  - Identifikacija ovisnosti unutar aplikacije (graf ovisnosti)
  - Identificiranje manifestacija funkcionalnosti
- Obilaženje grafa ovisnosti i utvrđivanje koda koji implementira funkcionalnost

Identifikacija funkcionalnosti aplikacija

- 27 eksperimenata
- **44%** manje koda, u usporedbi s profiliranjem

Optimizacija koda aplikacija

- Kolike uštede se dobiju uklanjanjem nepotrebnog koda?
  - Rezultat: **40%** brže učitavanje aplikacije

Integracija koda funkcionalnosti*

*Towards Automatic Client-side Feature Reuse, WISE 2013

Integracija funkcionalnosti

- Proces uspješan:
  - Ponovno iskorištena funkcionalnost izgleda i ponaša se isto kao i u originalnoj aplikaciji
  - Sve već prisutne funkcionalnosti se ponašaju na isti način kao u originalnoj aplikaciji

Opis procesa

- Analiza aplikacije iz koje se izvlači funkcionalnost i identifikacija koda
- Analiza aplikacije u koju se ponovno koristi funkcionalnost
- Ispravljanje konflikata
- Spajanje koda

Evaluacija

- 6 „case study” aplikacija podijeljene u 3 grupe
- Da li je proces sposoban obaviti ponovno korištenje iz jedne aplikacije u drugu?
- Eksperimenti uspješni

Članci

- Generating feature usage scenarios in Client-side Web Applications, ICWE'13
- Identifying Code Of Individual Features in Client-side Web Applications, TSE vol.39 no.12 2013
- Towards Automatic Client-side Feature Reuse, WISE 2013
- Distributed Computation Multi-agent System, New generation computing. 31. 2013