Bibliografia

[1] The Smart Space Company. **Ubisense: Local position system and sentient computing**.

[2] EST - Engineering Systems Technologies. **MotionStar Wireless: Advanced Tracking Technology**.

[3] UTTERBACK, C.. **Interactive Installation**. `http://www.camilleutterback.com/`.

[4] WEISER, M.. **The computer for the 21st century**. Scientific American, 256(3):94–104, Set. 1991.

[5] GAMMA, E.; HELM, R.; JOHNSON, R. ; VLISSIDES, J.. **Design Patterns: Elements of Reusable Object-Oriented Software**. Addison Wesley, Ago. 1994.

[6] WEISER, M.; BROWN, J. S.. **The coming age of calm technology**. Relatório técnico, Xerox PARC, Out. 1996.

[7] IERUSALIMSCHY, R.; DE FIGUEIREDO, L. H. ; CELES, W.. **Lua - an extensible extension language**. Software: Practice & Experience, 26 #6:635–652, 1996.

[8] BOX, D.. **Essential COM**. Addison-Wesley, 1998.

[9] CERQUEIRA, R.; CASSINO, C. ; IERUSALIMSCHY, R.. **Dynamic component gluing across different componentware systems**. International Symposium on Distributed Objects and Applications, 1999.

[10] Microsoft Corporation, Redmond, WA, EUA. **Easy Living**, 2000. `http://research.microsoft.com/easyliving/`.

[11] ANTONACCI, M. J.. **Ncl: Uma linguagem declarativa para especificação de documentos hipermídia com sincronização temporal e espacial**. Tese de mestrado, PUC-Rio, Rio de Janeiro, Brasil, Abr. 2000.

[12] SOARES, L. F. G.; RODRIGUES, R. F. ; SAADE, D. C. M.. **Modeling, authoring and formatting hypermedia documents in the hyperprop system**. ACM Multimedia Systems Journal - ACM, p. 118–134, Mar. 2000.

[13] CERQUEIRA, R.. **Um Modelo de Composição Dinâmica entre Sistemas de Componentes de Software**. Tese de doutorado, PUC-Rio, Rio de Janeiro, Brasil, Ago. 2000.

[14] KIM, K.. **Extended dsrt system**. Tese de mestrado, University of Illinois at Urbana-Champaign, Urbana, EUA, Ago. 2000.

[15] CHILDERS, L.; DISZ, T.; OLSON, R.; PAPKA, M. E.; STEVENS, R. ; UDESHI, T.. **Access Grid: Immersive Group-to-Group Collaborative Visualization**. Argonne National Laboratory and University of Chicago, 2000. `http://www-unix.mcs.anl.gov/fl/publications/childers00.pdf`.

[16] SATYANARAYANAN, M.. **Pervasive computing: Vision and challenges**. IEEE Personal Communications, p. 10–17, Ago. 2001.

[17] CERQUEIRA, R.. **LuaOrb**. PUC-Rio, Rio de Janeiro, Brasil, Mai. 2001. `http://www.tecgraf.puc-rio.br/luaorb`.

[18] ADDLESEE, M.; CURWEN, R.; HODGES, S.; NEWMAN, J.; STEGGLES, P.; WARD, A. ; HOPPER, A.. **Implementing a sentient computing system**. Computer, 34(8):50–56, 2001.

[19] W3C. **Synchronized Multimedia Integration Language (SMIL 2.0)**. World Wide Web Consortium, Ago. 2001. `http://www.w3.org/TR/smil20`.

[20] HUNTER, J.; LITTLE, S.. **Building and Indexing a Distributed Multimedia Presentation Archive using SMIL**. University of Queensland, Australia, Mar. 2001. `http://archive.dstc.edu.au/RDU/staff/jane-hunter/ECDL01/ECDL01.html`.

[21] Qualcomm. **Brew Technology**, Jan. 2001. `http://www.qualcomm.com/brew`.

[22] RODRIGUES, R. F.; RODRIGUES, L. M. ; SOARES, L. F. G.. **Desenvolvimento e integração de ferramentas de exibição em sistemas de apresentação hipermídia**. VII Simpósio Brasileiro em Sistemas Multimídia e Hipermídia, p. 70–88, Out. 2001.

[23] SAADE, D. C. M.; SOARES, L. F. G.. **Hypermedia spatio-temporal synchronization relations also deserve first-class status**. Proceedings of the Multimedia Modeling Conference MMM'2001, Nov. 2001.

[24] DE MOURA, M. S. A.. **Relações espaciais em documentos hipermídia**. Tese de mestrado, PUC-Rio, Rio de Janeiro, Brasil, Ago. 2001.

[25] CERQUEIRA, R.; HESS, C. K.; ROMÁN, M. ; CAMPBELL, R. H.. **Gaia: A development infrastructure for active spaces**. Workshop on Application Models and Programming Tools for Ubiquitous Computing, Set. 2001.

[26] ROMÁN, M.; HESS, C.; CERQUEIRA, R.; RANGANATHAN, A.; CAMP-BELL, R. H. ; NAHRSTEDT, K.. **A middleware infrastructure for active spaces**. IEEE Pervasive Computing, 1(4):74–83, 2002.

[27] GARLAN, D.; SIEWIOREK, D. P.; SMAILAGIC, A. ; STEENKISTE, P.. **Project aura: Toward distraction-free pervasive computing**. IEEE Pervasive Computing, April-June 2002, 21(2):22–31, 2002.

[28] CAMPBELL, R.; AL-MUHTADI, J.; NALDURG, P.; SAMPEMANE, G. ; MICKUNAS, M. D.. **Towards security and privacy for pervasive computing**. Theories and Systems, Mext-NSF-JSPS International Sympsium, p. 1–15, Nov. 2002.

[29] WICHADAKUL, D.; GU, X. ; NAHRSTEDT, K.. **A programming framework for quality-aware ubiquitous multimedia applications**. ACM Multimedia 2002, Dez. 2002.

[30] JEON, W. J.; NAHRSTEDT, K.. **Qos-aware middleware support for collaborative multimedia streaming and caching service**. Microprocessors and Microsystems, Special Issue on QoS-enabed Multimedia Provisioning over the Internet, Elsevier Science, Dez. 2002.

[31] GUPTA, D.. **Design, implementation and validation of a focus aware, resouce management system for distributed multimedia applications**. Tese de mestrado, University of Illinois at Urbana-Champaign, Urbana, EUA, Mai. 2002.

[32] LI, D.; LI, R.. **Transparent sharing and interoperation of heterogeneous single-user applications**. Proceedings of the 2002 ACM conference on Computer supported cooperative work, p. 246–255, 2002.

[33] SATYANARAYANAN, M.. **The evolution of the coda file system**. ACM Trans.Computer Systems, 20(2):85–124, Mai. 2002.

[34] FELIX, M. F.; HAEUSLER, E. H. ; SOARES, L. F. G.. **Validating hypermedia documents: a timed automata approach**. Relatório técnico, PUC-Rio, Rio de Janeiro, Brasil, Ago. 2002. PUC-RioInf.MCC21/02.

[35] SAADE, D. C. M.; RODRIGUES, R. F. ; SOARES, L. F. G.. **Xconnector: Extending xlink to provide multimedia synchronization**. II ACM Symposium on Document Engineering - DocEng2002, p. 49–56, Nov. 2002.

[36] JOHANSON, B.; FOX, A.. **The event heap: A coordination infrastructure for interactive workspaces**. Proceedings of the Fourth IEEE Workshop on Mobile Computing Systems and Applications, p. 83, 2002.

[37] Microsoft Research, Redmond, WA, EUA. **Conference XP**, 2002. `http://www.conferencexp.net/`.

[38] POPE, S. T.; ENGBERG, A.. **Distributed control and computation in the hpdm and dscp projects**. Symposium on Sensing and Interaction in Media-centric Systems (SIMS 02), 2002.

[39] HESS, C. K.. **The Design and Implementation of a Context-Aware File System for Ubiquitous Computing Applications**. Tese de doutorado, University of Illinois at Urbana-Champaign, Urbana, EUA, 2003.

[40] Microsoft Corporation, Redmond, WA, EUA. **Advanced Systems Format (ASF) Specification**, Set. 2003. `http://www.microsoft.com/windows/windowsmedia/format/asfspec.aspx`.

[41] IERUSALIMSCHY, R.; DE FIGUEIREDO, L. H. ; CELES, W.. **Lua 5.0: Programming Language Manual**. Tecgraf - Laboratório de Computação Gráfica, Rio de Janeiro, Brasil, Mai. 2003. `http://www.lua.org/manual/5.0/`.

[42] SAADE, D. C. M.. **Relações em Linguagens de Autoria Hipermídia: Aumentando Reuso e Expressividade**. Tese de doutorado, PUC-Rio, Rio de Janeiro, Brasil, Mar. 2003.

[43] BARDRAM, J. E.. **Supporting mobility and collaboration in ubiquitous computing**. Relatório técnico, University of Aarhus, Aarhus, Denmark, 2003.

[44] TANDLER, P.. **The beach application model and software framework for synchronous collaboration in ubiquitous computing environments**. Journal of Systems and Software, 69(3):267–296, Jan. 2004.

[45] CARVALHO, D.. **A Software Architecture for User Environments in Ubiquitous Systems**. Tese de doutorado, University of Illinois at Urbana-Champaign, Urbana, EUA, Dez. 2004.

[46] GLASBERG, M. S.; CERQUEIRA, R.. **Activepresentation: Uma infra-estrutura de software para controle de apresentações em espaços ativos**. WebMedia/LA-Web, Out. 2004.

[47] WebEx. **Presentation Studio**, 2004. `http://www.presenter.com/`.

[48] CyberLink Corp. **StreamAuthor**, 2004. `http://www.gocyberlink.com/english/products/product_main.jsp?ProdId=32`.

[49] CUI, Y.; NAHRSTEDT, K. ; XU, D.. **Seamless user-level handoff in ubiquitous multimedia service delivery**. Multimedia Tools and Applications Journal, Special Issue on Mobile Multimedia and Communications and m-Commerce, p. 137–170, 2004.

[50] CELES, W.; ABRAHAM, F.. **VIS: Uma biblioteca de visualização tridimensional**. Tecgraf/PUC-Rio, Abr. 2004. `http://www.tecgraf.puc-rio.br/~fabraham/vis`.

[51] JOHANSON, B.; FOX, A.. **Extending tuplespaces for coordination in interactive workspaces**. J. Syst. Softw., 69(3):243–266, 2004.

[52] BALLAGAS, R.; SZYBALSKI, A. ; FOX, A.. **Patch panel: Enabling control-flow interoperability in ubicomp environments**. PerCom 2004 Second IEEE International Conference on Pervasive Computing and Communications, p. 241–252, Mar. 2004.

[53] VON HOFFMAN, J. T.; VENKATARAMAN, V.. **User's Guide to Shared Applications for AG Toolkit**. Boston University, Mai. 2004.

[54] Real Networks. **Accordent's PresenterOne**, 2004. `http://www.realnetworks.com/products/presenterone/`.

[55] RANGANATHAN, A.. **A Task Execution Framework for Autonomic Ubiquitous Computing**. Tese de doutorado, University of Illinois at Urbana-Champaign, Urbana, EUA, Mai. 2005.

[56] LIANG, J.; NAHRSTEDT, K.. **Service composition for advanced multimedia applications**. Twelfth Annual Multimedia Computing and Networking (MMCN'05), Jan. 2005.

[57] BULTERMAN, D. C. A.; HARDMAN, L.. **Structured multimedia authoring**. ACM Trans. Multimedia Comput. Commun. Appl., 1(1):89–109, 2005.

[58] DE OLIVEIRA E SILVA, H. V.. **X-smil: Aumentando reuso e expressividade em linguagens de autoria hipermídia**. Tese de mestrado, PUC-Rio, Rio de Janeiro, Brasil, Abr. 2005.

[59] NAHRSTEDT, K.; YU, B.; LIANG, J. ; CUI, Y.. **Hourglass multimedia content and service composition framework for smart room environements**. Elsevier Journal on Pervasive and Mobile Computing, 2005.

[60] GU, X.; NAHRSTEDT, K.. **Distributed multimedia service composition with statistical qos assurances**. IEEE Transactions on Multimedia, 2005.

[61] OMG, Needham, MA. **The Common Object Request Broker Architecture and Specification; Revision 2.2**, Fev. 1998. `http://www.omg.org`.

A
Primeiro Apêndice

Nesta Seção apresentamos alguns dos conectores oferecidos pela linguagem NCL e que foram utilizados em nossos arquivos NCLua. Nossos exemplos utilizam basicamente as relações primitivas de Allen entre dois intervalos.

A.1
Conector starts.xml

```xml
<?xml version="1.0"?>
<causalConnector id="starts" xsi:type="CausalHypermediaConnector"
xmlns="http://www.telemidia.puc-rio.br/spe\cs/xml/XConnector/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.telemidia.puc-rio.br/specs/xml/XConnector/
file:../mediaContent/data/schemas/ncl21/XConnector21.xsd">
   <conditionRole id="on_x_presentation_begin" eventType="presentation">
      <eventTransitionCondition transition="starts"/>
   </conditionRole>
   <actionRole id="start_y" eventType="presentation" actionType="start"/>
   <causalGlue>
      <simpleTriggerExpression conditionRole="on_x_presentation_begin" />
      <simpleActionExpression actionRole="start_y"/>
   </causalGlue>
</causalConnector>
```

A.2
Conector finishes.xml

```xml
<?xml version="1.0"?>
<causalConnector id="finishes"
xmlns="http://www.telemidia.puc-rio.br/spe\cs/xml/XConnector/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```
xsi:schemaLocation="http://www.telemidia.puc-rio.br/specs/xml/XConnector/
file:../mediaContent/data/schemas/ncl21/XConnector21.xsd">
   <conditionRole id="on_x_presentation_end" eventType="presentation">
      <eventTransitionCondition transition="stops"/>
   </conditionRole>
   <actionRole id="stop_y" eventType="presentation" actionType="stop"/>
   <causalGlue>
      <simpleTriggerExpression conditionRole="on_x_presentation_end" />
      <simpleActionExpression actionRole="stop_y"/>
   </causalGlue>
</causalConnector>
```

A.3
Conector meets-start.xml

```
<?xml version="1.0"?>
<causalConnector id="meets-start" xsi:type="CausalHypermediaConnector"
xmlns="http://www.telemidia.puc-rio.br/spe\cs/xml/XConnector/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.telemidia.puc-rio.br/specs/xml/XConnector/
file:../mediaContent/data/schemas/ncl21/XConnector21.xsd">
   <conditionRole id="on_x_presentation_end" eventType="presentation">
      <eventTransitionCondition transition="stops"/>
   </conditionRole>
   <actionRole id="start_y" eventType="presentation" actionType="start"
   max="20"/>
   <causalGlue>
      <simpleTriggerExpression conditionRole="on_x_presentation_end"/>
      <simpleActionExpression actionRole="start_y"/>
   </causalGlue>
</causalConnector>
```

B
Segundo Apêndice

A transformação da API de controle de aplicações baseadas em COM como o Windows Media Player®, PowerPoint® e outros é feita através do sistema LuaORB, que auxilia a distribuição dessas interfaces, por exemplo, convertendo tipos de dados entre os diferentes middlewares. Maiores informações podem ser encontradas nos trabalhos [9, 17].

Abaixo apresentamos a IDL COM do Internet Explorer® e a transformação dessa IDL para CORBA. Nota-se que a transformação é bastante direta e poderia ser automatizada.

```
// COM IDL
dispinterface IWebBrowser2 {
    properties:
    methods:
        [id(0x00000064), helpstring("Navigates to the previous
          item in the history list.")]
        void GoBack();
        [id(0x00000065), helpstring("Navigates to the next
          item in the history list.")]
        void GoForward();
        [id(0x00000066), helpstring("Go home/start page.")]
        void GoHome();
        [id(0x00000068), helpstring("Navigates to a URL or file.")]
        void Navigate(
                        [in] BSTR URL,
                        [in, optional] VARIANT* Flags,
                        [in, optional] VARIANT* TargetFrameName,
                        [in, optional] VARIANT* PostData,
                        [in, optional] VARIANT* Headers);
        [id(0x00000192), propget, helpstring("Determines whether
          the application is visible or hidden.")]
        VARIANT_BOOL Visible();
```

```
                [id(0x00000192), propput, helpstring("Determines whether
                   the application is visible or hidden.")]
                void Visible([in] VARIANT_BOOL rhs);
                [id(0x00000197), propget, helpstring("Maximizes window and
                   turns off statusbar, toolbar, menubar, and titlebar.")]
                VARIANT_BOOL FullScreen();
                [id(0x00000197), propput, helpstring("Maximizes window and
                   turns off statusbar, toolbar, menubar, and titlebar.")]
                void FullScreen([in] VARIANT_BOOL rhs);
        };


        // CORBA IDL
        #ifndef IE_IDL
        #define IE_IDL

        #pragma prefix "tecgraf.puc-rio.br"

        module IE
        {
            interface Application
            {
              oneway void GoBack();
              oneway void GoForward();
              oneway void GoHome();
              oneway void Navigate(in string url);
              attribute boolean Visible;
              attribute boolean FullScreen;
            };
        };


        #endif
```